COAL AGE

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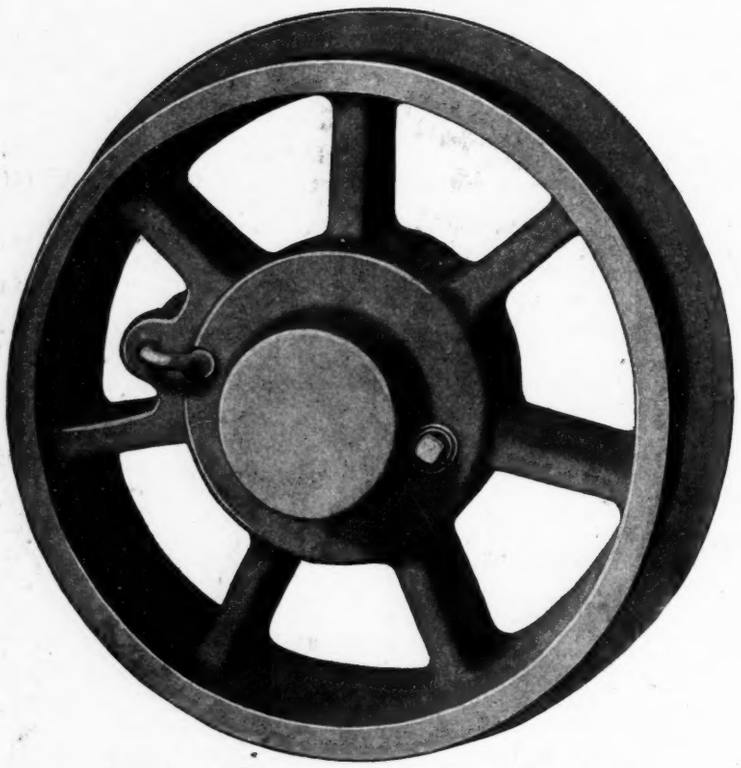

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COAL AGE

The Only National Paper Devoted to Coal Mining and Coal Marketing

C. E. LESHER, *Editor*

Volume 23 NEW YORK, THURSDAY, JANUARY 18, 1923 Number 3

Looking Ahead in the Light of What Happened in 1922

Bituminous Coal Production Approximately That of Preceding Year, Though Output of Manufactures Is 50 Per Cent Greater—Substitution and Conservation Foreshadow Smaller Base for Soft-Coal Industry

WHAT happened in 1922 in the coal industry is of chief interest now in helping us to look ahead into 1923. The first fact to be faced is that production of bituminous coal was approximately as great in 1922 (407,000,000 tons) as in 1921 (415,000,000 tons) and making allowance for net changes in consumers' stocks and for exports, it appears from the preliminary figures that 400,000,000 net tons of bituminous coal was consumed in 1922, as compared with 392,000,000 tons in 1921. The difference is small.

On the other hand, the production of manufactured commodities in 1922 was about 50 per cent over 1921, according to the Department of Commerce. Textiles, iron and steel, non-ferrous metals, petroleum, paper, rubber, automobiles, building construction, lumber, brick, cement, leather, sugar, meats and agricultural receipts each recorded gains in the past year of from 5 to 70 per cent over 1921. The railroads originated approximately as many carloads of freight in 1922 as in 1921, despite the loss of some 40,000,000 net tons of anthracite production and several million tons of soft coal.

The answer to how the country could do more business requiring fuel and power and use little or no more coal is found in several directions, none of which can be evaluated with precision at this time. Householders' requirements, as measured by deliveries to retail coal dealers, were substantially lower in 1922 than in 1921. Mild weather is only partly responsible for this: probably as important is the fact that retail dealers took in much less than normal tonnages of bituminous coal during the summer months, when the strike was on. This and the partial lack of hard coal accounts for the avid demand from domestic users and retail dealers that characterizes the market at the close of 1922.

In other directions, among the heavy coal-consuming industries the greater production with less coal consumed is attributed to substitution and conservation, both the direct result of high prices and, since April 1, the difficulty of obtaining supplies. There is in progress a continually greater utilization of water power that makes for greater industrial output with corresponding replacement of coal. This has continued through 1922. There was a 9-per cent increase in crude-oil consumption in 1922 over 1921, accompanied by a 20-per cent decline in price. Fuel-oil consumption doubtless gained even more, as is indicated by a 13-per cent increase in imports of Mexican crude, chiefly valuable as fuel. More fuel oil means less coal. New England, the Atlantic seaboard, the Gulf region and the Southwest are the areas of greatest use of fuel oil. Greater use of these substitutes will account for not less than 10 per cent of the coal that was not used.

Better utilization helps account for more results on less coal, for more production of manufactured products with less production of coal. The railroads, for instance, made their coal do approximately 8 per cent more work in ton-miles of freight handled in 1922 than in 1920 and about 3 per cent more than in 1921. The revolution in coal utilization that has been going on for a number of years is concerned with the development of central-station plants. These producers of power attain the maximum of horsepower from coal in their large modern plants. Year by year they have been taking over the power load for industry. Thousands of isolated plants maintained by industrials before the war have been laid idle and power purchased from central stations. The result is a gain in horsepower hours with the same tonnage of coal. The total consumption of coal by central stations is gradually increasing—they also have the largest developed water power plants—but the output of the former is gaining at even a more rapid rate. Furthermore, every ton of coal sold over power wires replaced more than a ton of coal in some smaller, less modern steam plants. The net result of more power from less coal cannot be measured in exact figures but it is an important factor.

If instead of tons of coal produced there were records of utilizable heat units shipped, the records of output would be different from what they are. Beyond question the tons of coal produced in such boom years as 1917, 1918 and 1920 contained more slate and ash in other forms than that produced in 1919 and 1921. When the buyer is free to choose, the best coals only, generally speaking, are produced. Pool 18 disappeared from the market in 1921; pools 9 and 10 gained. It so happens that the coal fields that are non-union and that worked during the strike in 1922 furnish among the highest grade coals in the country. Despite the threatening shortage throughout 1922 there were few periods when the lower grade coals were brought into the market. While not as clean as in 1921, the coal produced in 1922 was better than that produced in 1920. The tonnage shipped in 1920 that was not coal may have been anything up to 20,000,000 tons. Quality of coal produced is then a factor in making up the tons of total consumption.

Looking ahead into 1923—a year which observers generally, in their best New Year's vein, agree is to

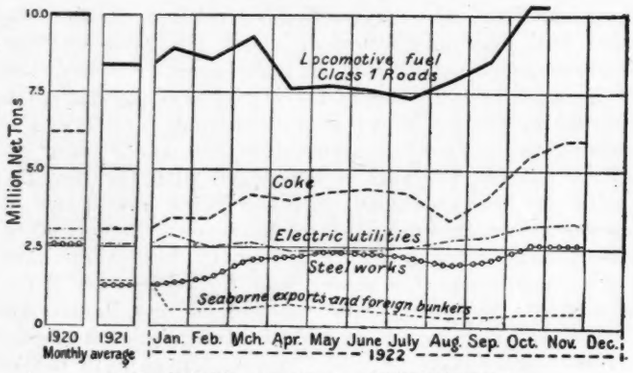
Coal Produced in the United States, by Groups of States, 1916-1922

(In Thousands of Net Tons)

	1916	1917	1918	1919	1920	1921	1922	Ratio 1922 to 1921	Increase or Decrease 1922 Compared With 1921 Tons	Increase or Decrease 1922 Compared With 1921 PerCent
Pennsylvania, Maryland, West Virginia, Virginia, Eastern Kentucky, Ohio and Michigan	324,493	334,283	351,511	298,930	347,196	252,275	251,959	99.9	—316	—0.1
Tennessee, Alabama	24,223	26,381	26,083	20,803	23,000	17,063	22,016	129.0	+4,953	+29.0
Illinois, Indiana, Western Kentucky	94,110	122,110	130,623	91,897	129,961	100,441	87,248	86.9	—13,193	—13.1
North Dakota, South Dakota, Iowa, Missouri, Kansas, Oklahoma, Arkansas and Texas	27,119	31,595	31,547	22,690	28,639	17,985	17,123	95.2	—862	—4.8
Colorado, Montana, Wyoming, Utah and New Mexico	29,388	33,411	35,539	28,550	36,114	25,729	26,814	104.2	+1,085	+4.2
Washington	3,039	4,010	4,082	2,990	3,757	2,429	2,540	104.6	+111	+4.6
Total bituminous	502,282	551,790	579,385	465,860	568,667	415,922	407,700	98.0	—8,222	—2.0
Anthracite	87,578	99,612	98,826	88,092	89,598	90,473	52,465	58.0	—38,008	—42.0

be one of continually expanding prosperity—the soft-coal industry must reckon on a new and smaller base.

Two years ago it was considered that 550,000,000 tons of bituminous coal represented a normal requirement for the country. That figure plainly is 100,000,000 tons too high for the present. It has been argued that the consumption of coal is inelastic; that it is fixed by conditions entirely outside the coal industry itself. In the humdrum days before the war, when price varied



THE TREND OF COAL CONSUMPTION

from season to season a few cents a ton at most, and a jump of 50c. over night was unheard of, perhaps consumption was inelastic. But it is not so now. Consumption has contracted, relative to the power-producing and heat-requiring needs of the country. High prices and uncertainty of supply have driven consumers to substitution of oil, water power, tar, and coke breeze, and the purchase of more economically produced central-station power.

Just as one result of the strike of 1922 will be the permanent loss of some of the old-time trade of the hard-coal producers—lost because consumers have been driven to substitutes that they find satisfactory in view of the price differential—so has the bituminous-coal industry in the past four years lost trade.

How some of the more important consumers used coal in 1922 is illustrated in the accompanying diagram giving the monthly consumption of bituminous coal in tons last year as compared with averages for 1920 and 1921. The drop in consumption of locomotive fuel from April to August was notable. Decreased tonnage of coal during the strike is largely responsible for the falling off in this item. Coke held up very well until August and made remarkable improvement in the last quarter. Consumption of coal by electric utilities was above 1921 but below 1920, until toward the end of the year. Steel works made gains in consumption throughout the first half, but slumped in July, August and September. Seaborne exports and foreign ship bunkers were low throughout the year. This diagram, compiled by W. F. McKenney, of the U. S. Geological Survey, does not cover the consumption of coal by industrial plants or distribution by retail dealers, two important items. All the available evidence indicates that the gradual business recovery of 1922 has gained speed since the strike ended. Consumption by the consumers represented in the diagram has increased sharply since that time, and the most recent reports show that of the five known items only exports and foreign bunker coal have failed to reach the monthly average in 1920.

How production varied through the year in each state is shown in the following table.

Production of Bituminous Coal by Months, 1922*

	January	February	March	April	May	June	July	August	September	October	November	Year to Nov. 30
Alabama	1,060,000	1,150,000	1,440,000	1,110,000	1,400,000	1,526,000	1,450,000	1,740,000	1,500,000	1,500,000	1,450,000	15,326,000
Arkansas	148,000	168,000	210,000	3,000	20,000	35,000	10,000	65,000	149,000	175,000	147,000	1,130,000
Colorado	804,000	782,000	980,000	400,000	595,000	770,000	750,000	950,000	845,000	920,000	1,000,000	8,796,000
Illinois	7,383,000	7,770,000	9,510,000	10,000	17,000	55,000	32,000	1,880,000	7,130,000	8,540,000	8,300,000	50,627,000
Indiana	2,180,000	2,420,000	3,040,000	7,000	15,000	12,000	18,000	410,000	1,840,000	2,400,000	2,230,000	14,572,000
Iowa	600,000	630,000	850,000	0	0	0	0	53,000	476,000	656,000	605,000	3,870,000
Kansas	410,000	470,000	650,000	45,000	75,000	145,000	174,000	250,000	545,000	593,000	483,000	3,840,000
Kentucky	2,650,000	2,880,000	3,350,000	3,000,000	5,050,000	5,150,000	3,100,000	3,400,000	2,336,000	2,678,000	2,767,000	36,361,000
Maryland	170,000	160,000	210,000	3,000	12,000	13,000	14,000	26,000	37,000	183,000	195,000	1,023,000
Michigan	120,000	110,000	140,000	0	0	0	0	33,000	123,000	154,000	120,000	800,000
Missouri	360,000	370,000	530,000	1,000	10,000	25,000	83,000	80,000	332,000	474,000	420,000	2,685,000
Montana	345,000	390,000	490,000	10,000	10,000	20,000	22,000	83,000	342,000	427,000	410,000	2,549,000
New Mexico	190,000	180,000	260,000	145,000	150,000	255,000	250,000	290,000	239,000	295,000	277,000	2,531,000
North Dakota	75,000	80,000	80,000	26,000	20,000	20,000	36,000	123,000	162,000	78,000	80,000	780,000
Ohio	2,685,000	2,900,000	3,570,000	200,000	370,000	430,000	470,000	1,600,000	3,400,000	4,000,000	4,280,000	23,905,000
Oklahoma	190,000	210,000	290,000	50,000	75,000	95,000	89,000	156,000	379,000	304,000	235,000	2,073,000
Pennsylvania (Bit.)	9,370,000	10,640,000	13,295,000	4,115,000	3,590,000	4,200,000	3,828,000	7,270,000	10,787,000	12,248,000	12,550,000	91,893,000
Tennessee	400,000	455,000	540,000	240,000	330,000	370,000	208,000	293,000	272,000	512,000	523,000	4,143,000
Texas	66,000	60,000	74,000	68,000	75,000	75,000	75,000	95,000	102,000	120,000	108,000	918,000
Utah	425,000	402,000	430,000	255,000	250,000	340,000	375,000	498,000	490,000	421,000	490,000	4,376,000
Virginia	705,000	750,000	920,000	850,000	1,150,000	1,200,000	1,300,000	986,000	851,000	856,000	810,000	10,378,000
Washington	290,000	290,000	330,000	80,000	80,000	80,000	106,000	155,000	246,000	292,000	275,000	2,225,000
West Virginia	6,210,000	6,876,000	8,000,000	5,155,000	6,990,000	7,485,000	4,600,000	6,750,000	6,200,000	6,400,000	6,570,000	71,236,000
Wyoming	760,000	830,000	970,000	1,000	1,000	1,000	1,000	160,000	709,000	900,000	960,000	5,292,000
Other States†	8,000	7,000	8,000	5,000	5,000	7,000	12,000	12,000	18,000	15,000	18,000	115,000
Total bituminous	37,604,000	40,980,000	50,167,000	15,779,000	20,290,000	22,309,000	17,003,000	27,358,000	39,510,000	45,141,000	45,303,000	361,444,000
Anthracite	6,258,000	6,762,000	8,757,000	26,000	35,000	84,000	116,000	164,000	4,976,000	7,810,000	9,673,000‡	44,661,000
Grand total	43,862,000	47,742,000	58,924,000	15,805,000	20,325,000	22,393,000	17,119,000	27,522,000	44,486,000	52,951,000	54,976,000	406,105,000

* Estimates of the U. S. Geological Survey.
† Includes California, Georgia, Idaho, South Dakota, North Carolina, Alaska and Oregon.
‡ December production of anthracite, 7,804,000 net tons, calendar year, 52,465,000 net tons

Course of Coal Prices in 1922 Markedly Irregular

Market Vagaries Accentuated by Strike, Relatively Limited Demand and Restraining Influence of Operators and Government—Anthracite Shortage Causes Sharp Upturn in Quotations—Forecasts Vary Widely

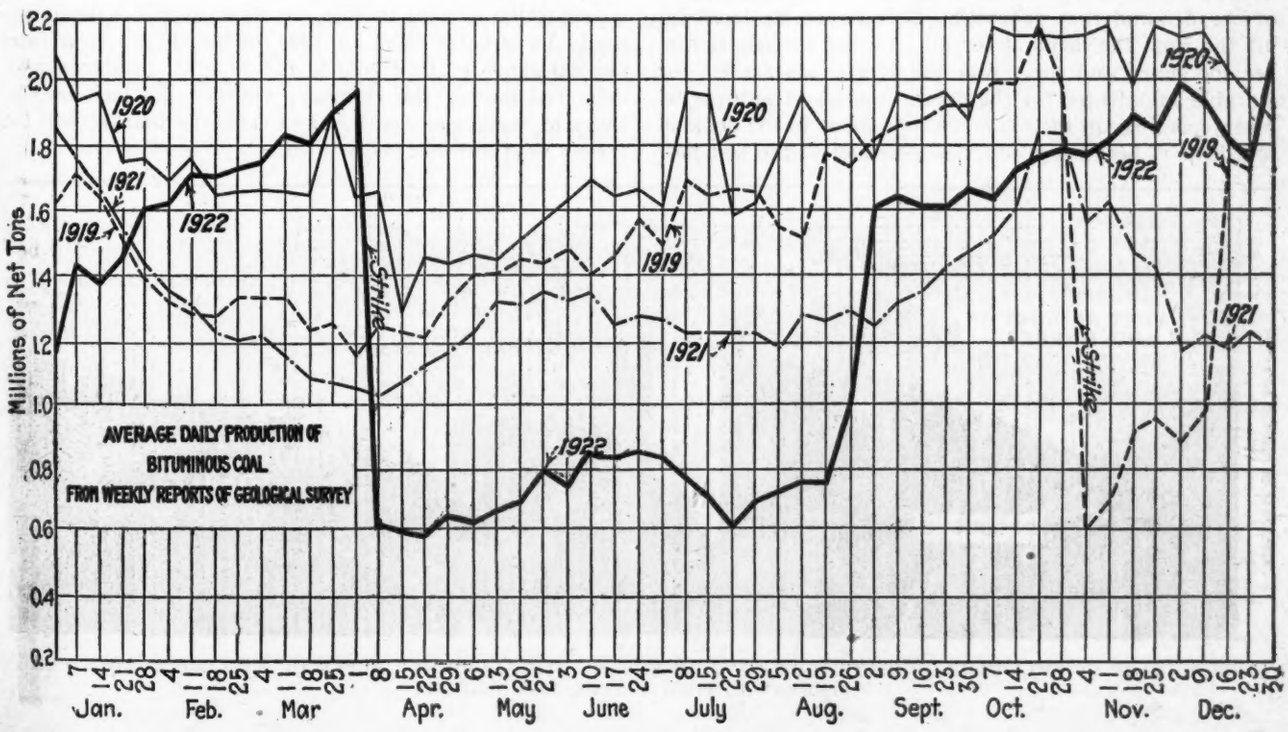
SPOT prices ran an irregular course in 1922. The vagaries of the market were accentuated by the strike, the relative smallness of the total demand and the voluntary repression on prices exercised by the operators and the government during several months of the strike period. The steady decline in the market that characterized 1921, when from January to December the spot market dropped $1 and the *Coal Age* Index from 270 to 187, continued through the first quarter of 1922. Demand was strong in the pre-strike months but the offerings overtopped the market. Little car shortage was reported and buyers had no difficulty in building up huge reserves.

Immediately after April 1 the market became firm and gradually stiffened. It was not until late in May, however, that prices threatened to get out of hand. Strikes in the non-union fields of Pennsylvania left the iron and steel industry with an unsatisfied demand. They had not made the preparations for a shutdown of the mines as had other consumers, and when their mines were largely closed they went into the market for large tonnages. They bought carefully but the effect was to bolster the market, in fact it seems likely that had the iron and steel industry not been forced into the market when they were the Southern fields would have had some difficulty until later in the summer in finding a market for their huge tonnages.

In the last half of May the government, through the Secretary of Commerce, effected a working agreement with the operators in the South by which prices on a majority of the tonnage were held down to levels considered reasonable as compared with the prices fixed during the war. These informal agreements with Mr. Hoover did not have the effect of reducing prices, for the action was taken while the market was actively climbing and before the levels set had been reached. The result was a temporary staying of the ascent. Two fields, western Kentucky and eastern Kentucky, did not immediately enter into an understanding with the government. These are the only fields in which the average spot price in July was higher than in August; in all others that produced even in part during the summer the maximum prices were not reached until August. In August, following the strike, the voluntary price agreements were abandoned.

After the settlement was reached in Clevelend, in the middle of August, and the union mines returned to work the market was nearly two weeks finding a level. In several fields there was a small gain in prices in the last half of that month, in others the peak was recorded at once. Production was quickly attained and by the first of September spot prices were at the post-strike peak. Every precedent pointed to a continuation at this level and even further gains in the market. Stocks were depleted, the winter was approaching, the condition of the railroads indicated that production could not be raised to such high levels as in 1918 or in 1920, when 12,000,000 tons a week was common and 13,000,000 tons passed several times.

Here again Mr. Hoover stepped in, this time acting with the buyers and consumers. Through the United States Chamber of Commerce and the many affiliated organizations representing coal purchasers of magnitude, he appealed for sanity in handling the situation. Buying only to meet current requirements was urged. Purchasing agents for industrials, steel mills and railroads took up the idea. Prices began to decline. Production held up, even gained and, after reaching 11,000,-



RELATIVE SPOT PRICES OF ANTHRACITE

This shows the weighted average price of anthracite by months, including all sizes of both company and independent production. It is compiled from *Coal Age* quotations and the base of 100 is the average for the year ended June, 1914.

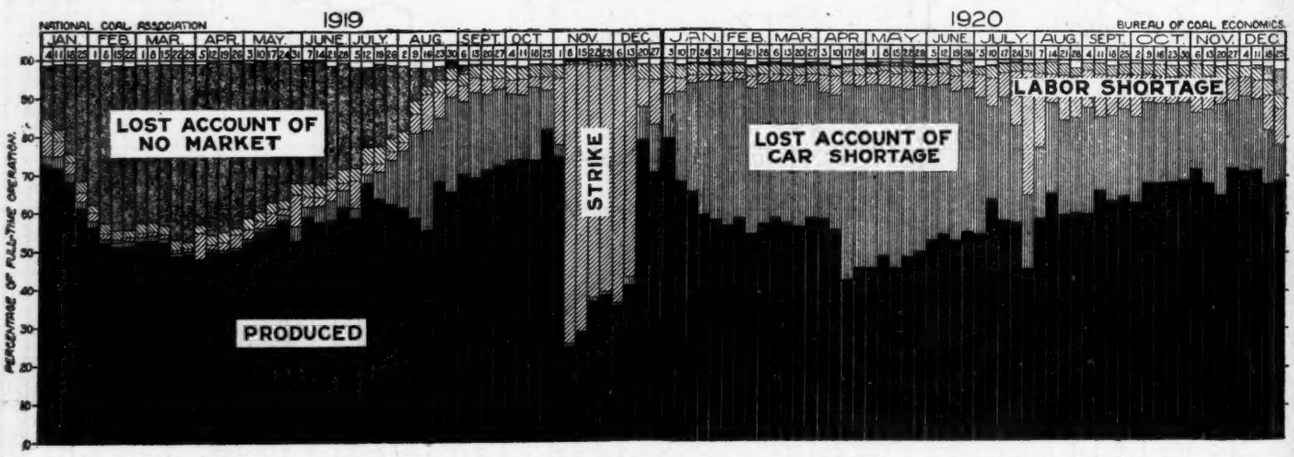
000 tons per week, was maintained on that level until the holiday season at the end of the year.

During this period prices declined steadily, until real winter weather in the middle of December brought forth another factor theretofore dormant—the shortage of anthracite. Approximately 40,000,000 net tons represents the difference between the 1921 and 1922 production figures for hard coal. When the hard-coal miners went back to work Sept. 1 the general public that depends on hard coal to keep warm in the winter settled down with a huge sigh of satisfaction. They expected that now they would have their coal. Nothing that was said by public officials seemed to stir them to action in stocking substitutes and retail dealers were lacking in incentive to fill their yards in anticipation of the demand that followed. When zero weather did hit the East the demand for all kinds of household fuel became sharp and there was and still is a scramble for suitable substitutes for the domestic sizes of anthracite. Mainly as a result of this large increment to the demand and in part because production declined in the last half of December, while consumption was increasing, prices took a sharp upward turn, regaining in part the ground lost during September, October and November. The largest gains were in the East, where there is the greatest demand for substitutes for hard coal.

Opinion on the course of the market in 1923 ranges widely, from forecasts to the effect that not only will this year see continued high prices but that the same situation will prevail for several years to come to the more conservative belief that once the question of a strike in the soft-coal fields this year has been settled, either pro or con, and the sharp edge of winter is off, the market will settle down to a long down pull.

It seems reasonably clear that negotiations between the miners and operators looking toward a new contract are going to be long drawn out. The demand for coal will be good throughout the first quarter of this year. Stocks will be accumulated by consumers though not so large as last year. Then, whether there be a strike or not, demand after April 1 will fall off and the market drop. The extent of the expected decline in demand and prices after April 1 in the event of a strike will depend on the severity of the strike. If the Connellsville and other non-union fields in Pennsylvania are not affected the result will be quite different than if they again are hard hit. Should the old Central Competitive Field, even in part, reach an agreement and continue at work, and some of the outliers, as central Pennsylvania, come to grips over their local situation—and their disinclination to join in a national conference appears to be predicated on the desire to straighten out their particular affairs with the union—the market would be stronger by that much than if they continue.

Looking ahead to the fall and winter of 1923, all that can be said is that contingent always on the attainment of some form of settlement of economic affairs in Europe that does not deprive this country of a market abroad, the demand for coal will be strong inversely as the production this summer is low. That is to say, barring a setback in the industrial recovery now definitely under way, which setback can be most effectively accomplished if Europe does not come to terms within itself, the consumption of coal in this country in 1923 will necessarily be greater than in 1921 or in 1922. If a fair normal share of that coal is not bought, produced and delivered during the summer, whether the lack be because of strikes or apathy of buyers, the market will be strong next autumn and winter.



PERCENTAGE OF FULL-TIME OPERATION OF COAL MINES AND TIME LOST BY CAUSES OF ALL BITUMINOUS COAL MINES IN UNITED STATES, 1919 AND 1920

Factors Limiting Production of Bituminous Coal

Lost Time in Earlier Months, Preceding Strike, Principally Due to "No Market"—Post-Strike Losses Almost Wholly Attributable to "Car Shortage"—Curtailment from Both Causes Nearly Equal

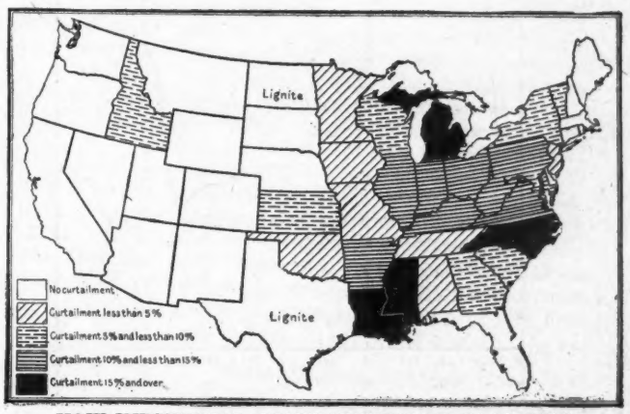
A COMPARISON of the *Coal Age* Index of spot prices and the diagrams of time worked and lost at the soft-coal mines, as shown in this issue, illustrates the difference between "no market" and "car shortage" as factors limiting the production of bituminous coal. Production in February and March was approximately equal to that in October and November, progressing upward in each of these two-month periods, one prior to the strike, the other afterward. In February and March the average daily production ranged from 1,600,000 tons to nearly 2,000,000 tons. The price was dropping throughout the period, the decline being slight, however, the index dropping from 182 to 170. The operators reporting to the Geological Survey attributed practically all of their lost time to lack of market.

Then, following the strike, after production had been resumed, the price index, standing at 404 the first week of October, declined to 330 the last week of November, while the average daily rate of production rose from about 1,600,000 tons to 1,900,000 tons. Here we had two periods with almost identical rates of production—in the first, the market limiting the rate of production; in the second, "car shortage" being charged with the lack of output.

In the earlier months there was less anxiety on the part of buyers and less bidding for coal—fewer mines were producing and calling on the railroads for cars. The mines that were in operation were satisfied that had they called for more cars they could have obtained them, for they charged up their main losses in working time to lack of market. It was a buyers' market in February and March. By the time the long strike was settled, stocks were low, winter was in prospect and buyers more avid for supplies. It had become a sellers' market and with orders in excess of current ability to produce and ship, the producer charged up his main loss of time to "car shortage."

The individual district records in this respect are interesting. They are shown graphically in the Market Review Section of this issue, as compiled by the Bureau of Coal Economics of the National Coal Association, in part from unofficial records and in part from the weekly reports of the U. S. Geological Survey. The more important fields in which there was a total suspension of operation during the strike—Illinois, Indiana, Ohio and Pittsburgh—and those, as central Pennsylvania, Fairmont, Kansas and Kanawha, nearly but not entirely closed down, best illustrate the sharp change from market to transportation as factors limiting production.

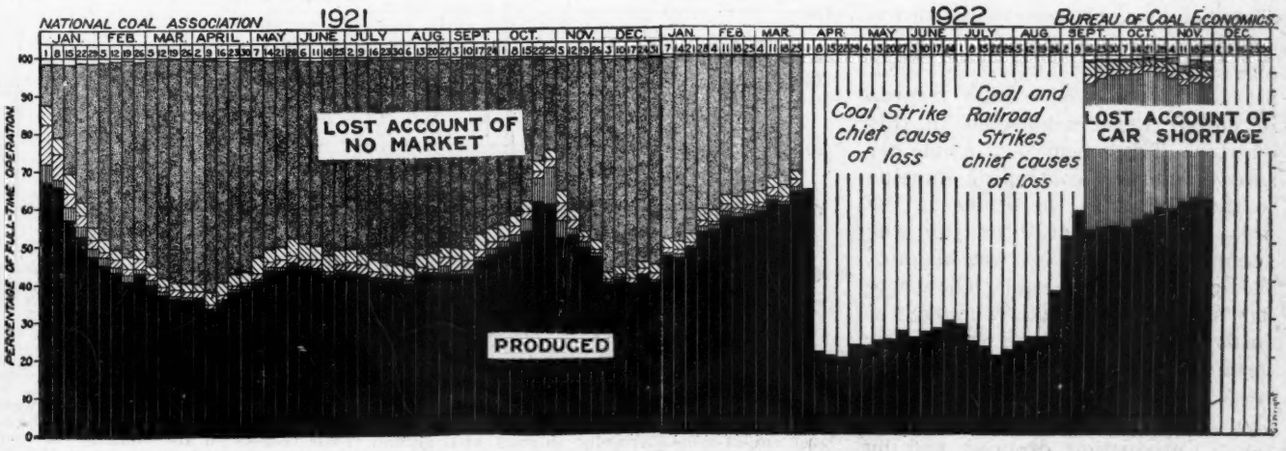
The records for Cumberland-Piedmont, New River,



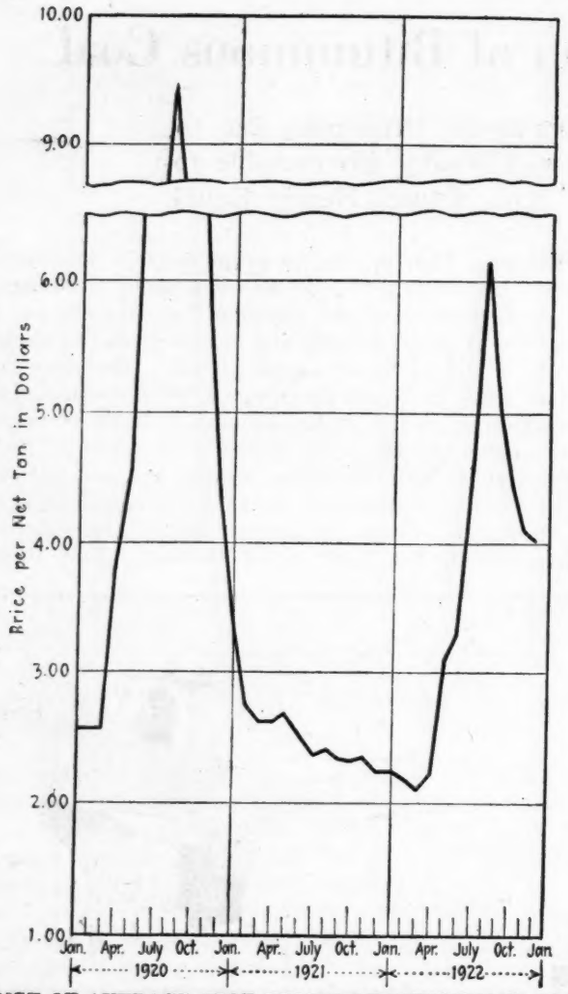
HOW INDUSTRIAL CONSUMPTION OF COAL WAS CURTAILED BY THE STRIKE

This diagram, based on data collected by the United States Geological Survey shows when and to what extent industrial consumers curtailed operations and the consumption of coal during the later months of the strike of 1922.

Somerset County and the West Virginia Panhandle show the usual period of "no market" in the first quarter, followed by partial cessation of operations in April 1, and the transition of "strike" to "car shortage" as factors limiting production in the period beginning with April and ended with December. These districts



PERCENTAGE OF FULL-TIME OPERATION OF COAL MINES AND TIME LOST BY CAUSES OF ALL BITUMINOUS COAL MINES IN UNITED STATES, 1921 AND 1922



RANGE OF AVERAGE SPOT PRICES OF BITUMINOUS COAL

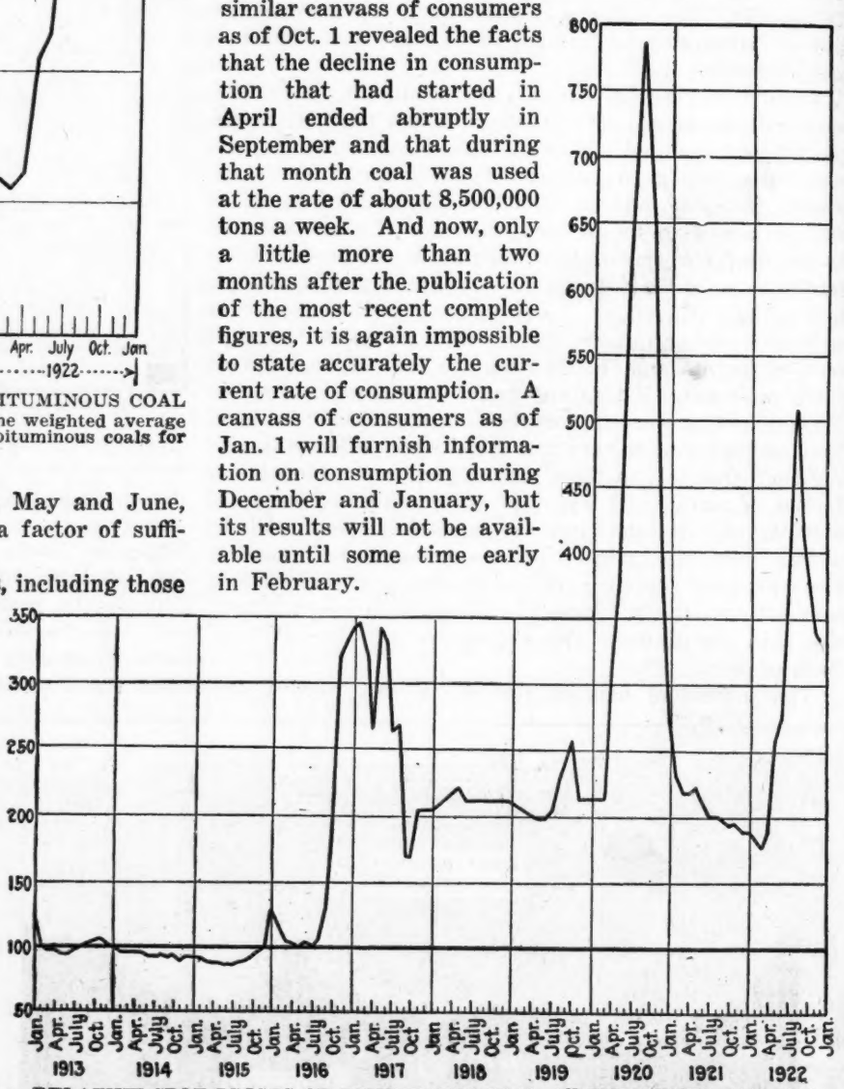
This diagram shows the monthly range of the weighted average spot price (f.o.b. mines) of 14 representative bituminous coals for the three years 1920-1922.

also record the short period in April, May and June, during which lack of market was yet a factor of sufficient importance to record.

There is another large group of fields, including those in southern West Virginia, Logan, Kenova-Thacker, Pocahontas, Tug River and Winding Gulf, those in eastern Kentucky, including Hazard, Harlan and northeastern Kentucky, all non-union, and western Kentucky, a union field, that recorded remarkable spurts in production in April, May and June. New high records in output were established in this quarter. These fields had ample car supply and with continuing impetus to the market as the strike in the union areas continued on into the summer, full advantage was taken of the opportunity to run. The shopmen's strike, directed primarily at roads originating coal in these fields, began on July 1, and by the second week had crippled the roads. Car shortage soon became a limiting factor, production dropped and by the time the strike was settled and the union mines began to order cars, production had slumped. The last quarter of the year was a period of short-time operation for these fields.

Virginia recorded a year of this character, with the car supply depleted in the last half, but better than in the other non-union fields to the immediate north and west. Alabama and Westmoreland did much better than the average non-union fields. There were some strike losses in Westmoreland in the second and third quarters and, compared with most other fields, a mild car shortage in the last quarter. Alabama found lack of market the largest single factor limiting production until the second half of August. From then on car shortage was the more important.

A canvass of coal consumers on March 1 indicated that during January and February, 1922, coal was consumed at the rate of about 8,100,000 tons a week. After the results of that canvass had been published, on the day the strike was called, there was no further complete information until a month after mining had been resumed. During that period of six months any estimate of the rate of consumption that may have been published necessarily included much guesswork. A similar canvass of consumers as of Oct. 1 revealed the facts that the decline in consumption that had started in April ended abruptly in September and that during that month coal was used at the rate of about 8,500,000 tons a week. And now, only a little more than two months after the publication of the most recent complete figures, it is again impossible to state accurately the current rate of consumption. A canvass of consumers as of Jan. 1 will furnish information on consumption during December and January, but its results will not be available until some time early in February.



RELATIVE SPOT PRICES OF BITUMINOUS COAL AT THE MINES, 1913-1922

This diagram shows the relative prices, not the actual prices, shown in succeeding diagrams in this issue of *Coal Age* for particular coals. Prices for fourteen coals, representative of nearly 90 per cent of the total output of the United States, were weighted in accordance, first, with respect to the proportions of each of slack, prepared and run-of-mine normally shipped and, second, with respect to the tonnage of each normally produced. The average thus obtained was compared with the average for the twelve months ended June, 1914, as 100, after the manner adopted in the Report on *Prices of Coal and Coke, 1913-1918*, published by the Geological Survey and the War Industries Board. The result is a series of index numbers.

Year 1922 Tackles Hopefully Many of the Big Problems Of Coal Production and Preparation

Loading Machines Halting Before Room-and-Pillar System—Rotary Dumps Makes Big Car Feasible and Big Car in Turn Solves Some of Our Loading Problems—Coal Crops Being Stripped—Germans Reinvent Cement Gun

BY R. DAWSON HALL*
New York City

IMPORTANT as are haulage, hoisting, pumping, and preparation at the mines, the leading problems are in the operations at the coal face—undercutting, drilling and loading. These three are more adversely affected than any other by the room-and-pillar method. The area to be undercut, drilled and loaded at the end of any room may be only 5x12 ft. and at most is 10x40 ft. If it could be staked out on the surface into a small farm and if all the other similar areas were likewise staked and if lanes were run up to the various farms from a common roadway at right angles thereto, one would have an idea how lacking in concentration such operation is, for work on the surface is never done in this manner. The farmer, being asked to plough, drill, and cultivate such trifling areas, would remark that if he could not have his farm in one or two places he would just as soon have none at all.

The difficulty of operation with such distances between operating points has made clamorous the present demand for longwall, sidewall or some other method of operation which would give some, at least, of the desired concentration. It is true the undercutter in a degree has managed to fit himself into the room-and-pillar system, and that there are not lacking some who are disposed to demand that the drill and loader shall be made to conform also to its requirements.

MUST ALL MACHINES COME TO IT?

It is said that the cutting machine has settled itself down to room-and-pillar work and that other machines must do the same. But cutting is reasonably efficient under that system. The full face can be cut at one time, be it 12 or 40 ft. wide, but the loading machine must load the cars one by one. So in a room-and-pillar face the machine is continually waiting. That is true even when every care is taken by the management to supply cars frequently. It is an inherent fault of the shuttle method of supplying cars.

The problem undoubtedly will be solved before long, but before that time something like a revolution is needed not only in operating methods, but in the compensation of the mine worker. The new machines should afford him a larger wage than he would receive when working by less efficient methods, but he is so doubtful whether such profit will result that it is likely that the operator will have to pay his miners entirely by the day or forego the advantages of loading machinery unless indeed he is operating in non-union territory.

When, however, it is solved it will be found that what is now regarded as a large tonnage for a single mine can be produced from nine or ten longwall faces. In the year just past a loader of the American Coal Loading Corporation in 3½ hours of broken time actually loaded 267 tons, the average loading rate per hour being 76.3 tons. This is considerably over one ton per minute of actual working time.

Unfortunately it is a heavy machine, requiring so much space that it seems to be suited only to those mines having a good roof and a hard floor. It is probable at least that mines thus favored will be the first to use loading machines exclusively and as a standard practice, but as confidence is established their use may be extended to mines less favorably circumstanced. The value of concentration, however, is quite important as far as haulage problems are concerned. Nothing is more wasteful than the gathering and coupling of cars. With a proper system there will be only one class of locomotives in the mine—namely, the main-line type designed for the hauling of full trips of cars.

Several attempts are being made to develop short or extensive longwall faces suited to loading machines or face conveyors, the aim being to obtain a long face without the cost and labor of packwalling, brushing and bottom lifting that is incident to longwall systems such as are usually employed in the mines of Europe and in those of Illinois, Iowa, and the anthracite region of Pennsylvania. Progress has not been rapid. The public only slowly grows to appreciate a new system and really there are so many rival and tentative plans that the public is still, and with reason, a little befuddled. After all it is quite likely that where the roof and floor are good the plans adopted will be entirely different from what they are when top and bottom are bad, and different yet again when the coal is thin from what they are when the coal is thick.

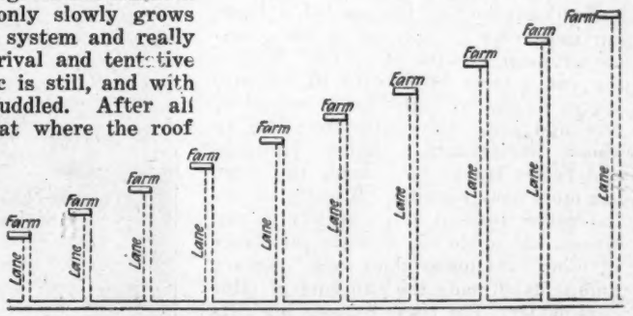
Interesting also is the way in which the scraper loader is being developed. New efficiency is being sought by making the haulage engine, the drag plane and its chute portable, by taking the ropes and the sheaves off the heading and by illuminating the scraper with a searchlight mounted on the hoist.

In gathering storage-battery locomotive service, units have been developed that will pass under an ordinary four legged table. The storage-battery locomotive is an economy wherever it is kept busy. It is profitable in thick and thin coal measures, but its value is most evident in thin coal. The lower the room into which it can travel the surer it is to keep the mule out. With such vertical clearances for locomotives as have now been developed it would be extremely expensive to dispense with the locomotive and rip top or lift bottom to provide room for a mule.

ROTARY DUMP MODIFIES CARS

The rotary dump is having an interesting effect on the mine car. The front end of the wagon being strengthened by the absence of the gate it has been possible to make the flare of the car flatter and yet build the car wider than ever before. The wheels now run in housings in the car bottom. This has been possible for two reasons. One is that the car is now so stiff that it is protected against any deformation that would make it drag on the wheels and the other is that the bottom of a car to be discharged on a rotary dump does not have to be flat for the coal to slide out of it.

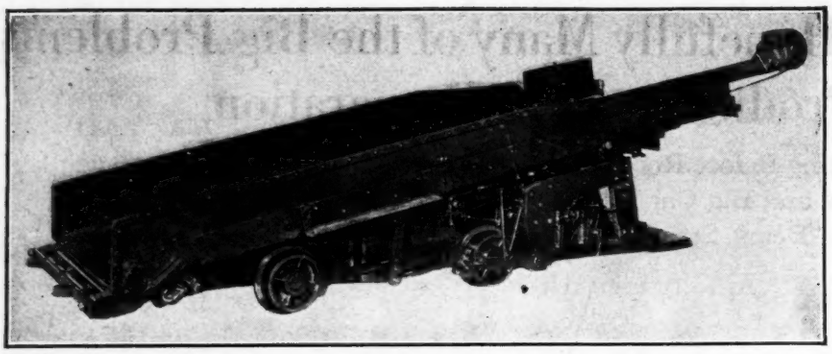
Now that the coal is slid out at the top the shape of the bottom of the car is a minor matter, in fact gusset plates



SMALL SCATTERED FIELDS WOULD PAY NO BETTER THAN MANY SHORT, UNCONNECTED MINE FACES

By making an analogy between a farm and a mine the reader can see perhaps how distressingly uneconomical are the operations in our coal workings. These ten small fields up ten long lanes approached by a lengthy highroad would breed desperation in a farmer.

*Engineering Editor, *Coal Age*.



AUTOMOTIVE SCRAPER HOIST, DRAG PLANE AND CHUTE

Long ropes constrained to follow certain lines by pulleys have cumbered the roadways under the scraper system. This is all saved by the new method which puts the hoist at the mouth of the room and enables it to move under its own power from neck to neck or, in longwall, from loading point to loading point.

are being used to stiffen the sides so that their full length will be supported and protected. Just how far this will go is doubtful, but with a rotary dump any plates needed to give the required strength can be introduced, though coal thrown on their edges is almost sure to be broken and vacuities are likely to be formed in the contents, thus lowering the working capacity of the car.

The room-and-pillar method so hampers loading that the large car is in ever greater demand. Such a car when placed at the face will give a loading machine several times as long a service as a small car. To carry the matter to an absurd extreme, suppose railroad cars could be used. Then the loading machine would need only to have cars placed ten times a day and three men loading by hand would find one car more than a day's supply. This would almost eliminate waits altogether. Rooms could be made longer without the increased length of the waiting time consequent thereon having an appreciable affect on the tonnage. Such a car would be unthinkable in any but in such mines as those at Hanna, Castle Gate or Hiawatha, and men could scarcely load them at all, as the casting would be too high and over too long a distance. Nevertheless the illustration though forced—perhaps just because it is forced—shows clearly one big advantage that the large car enjoys.

Big Car, Low Gathering Cost

Furthermore, by the use of a large car gathering is relieved of its greatest problem—length of travel. With a big car a mine locomotive in one trip moves seven or eight tons instead of one and cuts the gathering cost to about one-seventh. Roller bearings and better tracks have made the large car more easy running. Braking on the locomotive instead of by sprags in car wheels has made the tractive resistance of mine cars lower than ever. Rotary dumps have made the handling of mine cars easier. For these reasons big cars are likely to become more general in the thicker beds of this country, and in fact experiments are being made to design a car that will hold eight tons for use in the thick beds of the southern Illinois fields, specifically at the mines of the Chicago, Wilmington & Franklin Coal Co.

This change solves in part the problem of the room-and-pillar system in some mines—those having thick coal—but what is best suited to the room-and-pillar system will serve well also in longwall or sidewall should the car be used in such places. In fact the large car comes in time to meet the needs of mechanical loading, in whatever manner that loading may be performed.

Reverting, however, to the solid-end car it is interesting to note that just at the time that the rotary dump was introduced into America, and the solid-end car accordingly became feasible, the bottom-dump car (that hitherto dumped so readily that it could not overcome the habit but discharged anywhere between the face and the tipple) was so much improved that it began re-establishing itself in public confidence. It has a great advantage in that it will dump a whole trip on a cheaply constructed dump without any delay for uncoupling. It has, however, an unhealthy past to live down.

In connection with rotary dumps it may be added that. according to H. A. Turner, the H. C. Frick Coke Co. is expecting to install two Ramsay dumps each of which will handle thirty-five cars at one time. The dump will be nearly 400 ft. long and will be undergound. The dumping operation will occupy only about ten seconds.

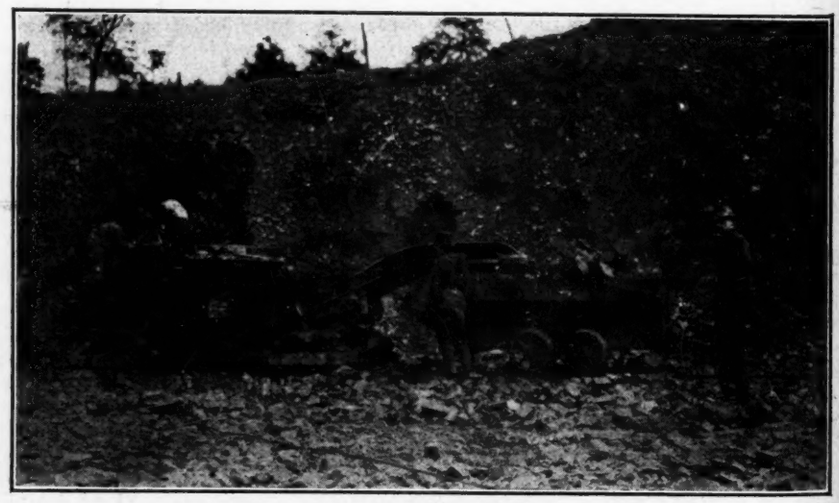
The Coverdale mine, and that of the Monroe Coal Co., at Revloc, Pa., have introduced a new idea in hoisting, two cars being raised side by side in the same cage, not in tandem nor one above the other but flank to flank. With the cars in tandem they must be removed from the cage for unloading. With cars on different decks the difficulties are many, so many, in fact, that not much attempt has been made to meet them. With cars side by side, self-dumping cages can be used. Ingenious indeed is the way in which cars in single file are caged side by side and after raising, dumping and lowering are again discharged side by side to be maneuvered into single file again.

Give Dirt Time to Settle

In the past year coal preparation has made some advances. In the anthracite region, for example, the James jig has been successfully treating fine coals, the secret of its success lying in the absence of suction. Owing to this quality the coal being washed has an opportunity to segregate. It is all very well to stir up the mine product in water, but some opportunity to settle is needed if the light and heavy are to be parted satisfactorily. The James jigs also have been developed so that they will prepare coal up to, and including, broken. In fact they expect soon to be handling lump coal also. A vibratory screen is being tried out by the Hardinge Co.

The Chance separator is making progress in the anthracite region, and in the soft-coal field something on a large and practical scale should be heard about the air or dry concentrator, a large installation being built by the American Coal Co. of Allegany County at the Crane Creek Mine.

Abroad the Draper and Rheolaveur



RELOADING COAL FROM STOCKPILE BY UNDERGROUND LOADER

The photograph from which this illustration was made was taken a few years back at Montour No. 10. For some doubtless good reason only one track was laid so that the machine is in the same disadvantageous position in which it would be if loading at the end of a room.

washers, both original applications of time-honored washing principles, are arousing much interest. Flotation is still being actively pushed as a means of treating coal and in some mines the coal thus floated is briquetted economically by a new process. In this county the Trent process is making headway, and Lindon W. Bates, who had been in England installing a plant to manufacture colloidal fuel, has now returned to this country.

In the stripping field activity in outcrop work has been reported around Osceola Mills, where miles of coal crops are to be found. It has been found by some coal men that if coal from the crop is crushed new black faces are exposed which not only fit the coal for steam uses but give the purchaser a more favorable impression of the product. The rust of outcrop coal is along developed fractures and does not extend into the heart of the lump. Crop coal has the advantage of being less disposed to coke on the grate.

In the extreme south of Alabama, in Escambia County, at the Alco mine, near the Florida line, hydraulicking is to be used to remove the overburden from above a coal bed. That method has not been practiced, I believe, since it was used in the Danville region of southern Illinois. It proved successful there but opportunities for its operation, of course, are somewhat limited. It has been used also for stripping iron ore in the Cayuna range of Minnesota.

Now Motors Are Absence-Proof

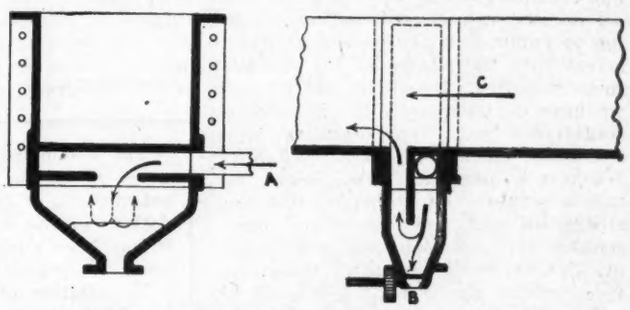
Notable among the achievements of the year has been the advance in the use of automatic electrical equipment. Nothing adapts itself better to remote control and automaticity than electricity, yet only recently has that fact been realized and taken advantage of in mining. At first the attempt was made, not with the approval of the manufacturer of course, to leave some machinery without manual control and with only a circuit breaker or even only fuses to protect it, but now the most elaborate of mechanical and electrical precautions are being taken to protect machinery, and where they have been installed the authorities at the mines regard automatic as safer and more expert than manual control.

At the Red Star Mine in West Virgina arrangements are provided so that if much power is desired, two motor-generator sets are put in operation, but if only one is needed the automatic electric apparatus shuts down one of them. The busiest time around the mine is the early morning and that is when much of the electric machinery has to be put in operation. Today, in consequence of the introduction of automatic devices, machinery can be safely started by remote control, and hence much of the most valuable part of the day is saved to the man who has the operation of the electric machinery in his charge.

One wonders whether the time will not come when the man who runs a locomotive or even a medium-sized hoist will be afforded opportunity merely to start the sequence of actions by which full power is developed or shut off, instead of being able to throw the controller handle with utter disregard of all the rules of proper operation. This provision is already embodied in electric railroad operation. Why should the motorman have it in his power to "goose" a motor?

If we had electricians to handle electrical machinery the present equipment might be properly used, but with machines started by motormen, machine men, ditch diggers, pumpers and hoistmen little latitude of choice should be allowed. It is to be hoped that within the space available on the locomotive, mining machine and loader some means will ultimately be found to put devices which will prevent the motorman, cutter and loader, respectively from abusing their motors. The pump and the hoist also should be protected by automatic devices, even where not operated from a distance.

Coal storage is increasing at the coal mines. It is beginning to be realized that while putting coal into and out of storage is expensive the coal thus put in and taken out may be a product which if not so disposed of would be otherwise holding mules, day and monthly men idle awaiting delivery of railroad cars or the repair of equipment. After the tipple has been idle an hour the coal coming to it for the next hour should be charged with double or nearly double the haulage and other operating costs.



HOW COAL IS WASHED BY THE RHEOLAVEUR

The coal is washed into the Rheolaveur through the pipe *A* and has to make a downward passage before rising through an opening into the main pipe *C*. The clean coal readily performs this aquatic feat urged on by the rush of water, but the slate on leaden feet falls down into a pocket and is drawn off by the gate *B*.

Had the coal been disposed of during that hour it surely could be handled so cheaply into and out of storage as to cost no more and probably far less than the tonnage received within the hour immediately following the shutdown, and the men would be kept in the mine and be better contended. It may be argued that the cost of delay should not be all loaded onto the coal dumped within a time equal to the period of delay but should be spread on all the coal loaded in that day. That argument looks fair enough, and indeed is fair, provided the cost of storing and reclaiming is spread also over all the day's product regardless of quantity.

If, however, it is figured on the basis of its own tonnage, then the cost of being idle should fall on an equal tonnage and not be spread any further. This fact has been overlooked and the result has been a false conclusion. Storage is a cost that is more than paid by the lowering of the average cost of the coal that is loaded that same day. The daily tonnage expense will be considerably lower than it would have been had the one-hour delay been allowed to occur. Furthermore there will be the advantage that with storage, every night "every last car" can be loaded. No cars partly loaded will be lost to next day's allotment, nor will a failure in the equipment, except such, of course, as affects the reclaiming of coal, prevent the full number of cars received from being loaded.

Many are the devices for such stocking and reclaiming; excessive mine-car supply, storage bins, derricks, shovels, locomotive cranes, conveyors, scraper loaders, dump cars and combinations of such equipment. A few serious fires have dampened the ardor of the companies in regard to coal storage but this usually can be avoided by dumping the coal into smaller piles and stocking sized coal, all fine or all coarse, the former being preferable from the point of view of economy, for the degradation of fine coal in storage does no harm. Frost is another source of difficulty.

Cement-gun work is being increasingly used not only in the United States but in Great Britain also. In Germany, according to the Department of Commerce, the cement gun has been invented all over again. The roof and ribs are covered with the cement-and-sand mixture $\frac{1}{2}$ in to $\frac{3}{4}$ in. thick. When the surface is weak and crumbly the layer is from $\frac{5}{16}$ in. to 1 in. thick.

The Germans contend that the use of the cement-sand coating gives the mine greater security against fire, enlarges haulageways by doing away with timber, improves the air by the removal of decaying wood and saves the costs of timber and maintenance, which, it is asserted, is reduced to one-fourth that of a timbered haulageway. In Upper Silesia a haulage road coated with concrete has stood for many years without timbering. A firm in New York City, the name of which is withheld, has been given the American rights to this power concrete gun. It may be a surprise to them to learn that the cement gun has been used in mining work more than a decade and was used in construction some years before.

At some mines an attempt is being made to avoid expensive surges of current by using locomotives of a speed of four miles instead of six miles per hour. It is believed that speed in gathering, while valuable, is being obtained at the cost of excessive charges for current. This belief, however, is being subjected to a practical test.

No Strike Expected April 1, Says Preliminary Report Of United States Coal Commission

The preliminary report to the President and the Congress of the United States Coal Commission was released on Monday, Jan. 15. As was expected, the report is primarily a report of progress. No final conclusions are announced, but further statements are promised at any early date. The report in full follows:

"The United States Coal Commission, as directed in the act creating it, approved Sept. 22, 1922, transmits herewith its first report.

"The commission held its first meeting on Oct. 18, 1922, within a few days after the appointment of its members by the President of the United States and less than three months prior to the making of this report. So numerous are the problems presented for our consideration by the Congress that we deemed it essential, before engaging in public hearings, to acquaint ourselves with the phases of the industry to be investigated, and for that purpose we have devoted much of our time to conferences with representative mine operators, officials of the United Mine Workers of America, wholesalers, retailers, experts on transportation and storage of coal, and committees representing the railroads and the public utilities, believing that after these conferences the public hearings could be materially shortened by being directed to the important points in controversy and avoiding collateral issues.

"An investigation of this character requires of necessity expert assistance, and the commission immediately began and has continued, as rapidly as proper persons could be found, to secure the services of a staff of experienced investigators and assistants to study and collate the undisputed underlying facts to be gleaned from reports of previous investigations and from the activities of such Federal agencies as the Geological Survey, the Bureau of Mines, Bureau of the Census, and the Federal Trade Commission, in order that it might use in its official reports all well-established and undisputed facts bearing upon the questions presented to it for consideration by the Congress of the United States. This staff is also charged with the duty of preparing questionnaires and conducting field investigations which should fully reveal, when completed, the salient facts bearing upon the various phases of the mining industry. The principal investigators are named in the appendix to this report and the character of their work is there indicated.

"When it is remembered that there are some 8,000 mines to make reports to this commission, it will be at once apparent that the queries could not be prepared, submitted and answered, and the returns analyzed or the field work completed within this short period of time. The commission is unwilling to guess about the facts, to jump at conclusions, or to make recommendations on the isolated facts which it has been enabled to accumulate since its organization. But it does report that it has found the conditions set forth in this report to exist, and that the questions arising therefrom have either been submitted as queries or will be taken up through field investigations and in public examination of witnesses.

"There is, however, so much controversy over many of the questions—especially those touching on strikes and lockouts, miners' wages, earnings of companies and upon what theory these earnings are computed, the living conditions of the miners, the competition between the different fields, whether there should be cars sufficient to supply the needs of the whole country at a peak demand, whether the miner is idle because he has no work or because he does not want to work—that the commission deems it to the best interest of the Congress of the United States not to express *prima facie* views upon these subjects, but only to give the facts and express opinions after complete investigations and deliberate thought.

The commission is unwilling to guess about the facts, to jump at conclusions, or to make recommendations on the isolated facts which it has been enabled to accumulate since its organization.

No solution of the coal problem can be found that does not recognize this community of interest between coal and transportation. But this community of interest, though simply stated, is not simple upon examination.

"*The Public and Coal.*—The coal problem begins with a contradiction. Rich beyond all other nations in its wealth of coal resources, the United States experiences coal shortages and high prices. The coal deposits of the country are abundant and well distributed. Coal of every variety from anthracite to lignite underlies the hills and plains and mountains in beds whose content is measured by thousands of billions of tons, so that coal of a quality and in quantity that would be regarded as important by most other nations is found in all but thirteen states of the Union, and commercial mines are being operated in twenty-nine states. Yet, with resources of coal in the ground adequate for the needs of perhaps a hundred generations of Americans, the nation's coal bin is too often depleted and too often the prices paid for coal are much higher than seem warranted by the wealth of coal available.

"There have been during the last six years three periods when shortage in the supply of coal has given rise to acute national concern. These recurring periods of scarcity have increased the cost of this basic commodity—increases especially serious to domestic consumers, railroads and public utilities. These experiences of unsatisfied demand and unsatisfactory prices have created in the popular mind a conviction that the natural benefits to be expected from a condition of plenty have been denied through artificial interference. The coal industry, therefore, has been subjected to outspoken criticism, and public dissatisfaction has expressed itself in a series of investigations and in regulatory laws. The act creating the United States Coal Commission is an expression of this feeling of public concern and dissatisfaction.

"*The Coal Industry.*—Every industry and every citizen throughout the country is directly or indirectly dependent upon coal. While it is true that a large majority of the states have coal mines within their limits, it is significant that all the anthracite comes from a narrow area of 480 square miles in eastern Pennsylvania and 93 per cent of the bituminous coal comes from three major areas: The Appalachian region, extending from Pennsylvania to Alabama, the greatest storehouse of high-rank coal in the world; the Eastern Interior region, comprising Illinois, Indiana and western Kentucky; and the Western Interior region, extending from Iowa to Arkansas and Oklahoma. Any map showing the distribution of the larger industrial plants of the country would in itself demonstrate the part played by these coal fields in locating the great manufacturing centers and planning the network of railroads that connect the larger commercial cities with the rich agricultural lands of the West and South. Inasmuch as more than two-thirds of the country's supply of high-grade coal lies within these three great coal areas, they may well be regarded as its chief known sources of industrial power for future centuries.

"The coal problem of the country, so far as it relates to present production, then, is largely localized in three coal regions and about a dozen States, although it is recognized that each mining district, large or small, has its problems to be investigated. In reality the coal industry includes three interrelated industries—mining, transportation and marketing.

"The coal-mining industry, in point of numbers employed, outranks any single manufacturing industry and stands next to transportation and agriculture. Approximately three quarters of a million men are employed in this industry, of whom 90 per cent work underground.

"The capital invested, according to the rough figures of the census, is $2,330,000,000, of which $430,000,000 is invested in the anthracite region and the remainder in the bituminous fields.

There are only 174 producers of anthracite and 8 of these control over 70 per cent of the annual output, while there are at least 6,000 commercial producers of soft coal, to say nothing of thousands of wagon mines and country coal banks. These producers operate 9,000 commercial mines.

"While the anthracite and bituminous branches of the coal industry are to some degree competitive in their markets, the differences in their mining, labor and economic problems are so marked that the discussion in this report will be limited to bituminous coal except where anthracite is specifically mentioned; the law requires a 'separate report on the anthracite industry on or before July 1, 1923.'

"Each coal district, if not each mine, has its own local customs and problems, determined by the quality of coal, thickness of seam, attitude of the bed, conditions of mining, the markets which it can reach, its freight rates, its labor policy and other factors. In the matter of wage scales, even in the union districts where wage scales are determined by joint agreement, we find variations from district to district and from mine to mine. Still more difficult to summarize are the wage rates in non-union mines. Not only are these wage rates complicated but the opportunity to labor varies so greatly from field to field or mine to mine, depending on character of coal, nearness to the market and commercial connections, that it is hazardous to make any generalization concerning miners' earnings.

"No less difficult under such conditions is the determination of average cost or profit. These subjects require specific and very detailed, painstaking investigation, which is complicated by the varying prices charged and received for the coal, quantity and quality both entering into the subject. The bituminous output is consumed approximately in the following percentages: Railroads, 28; industrials, 25; coking, 15; domestic, 10; iron and steel, 7; public utilities, 7; export, 4; mines, 2; bunkers, 2.

"The coal industry does not end at the mine. Some 180 railroads take the coal at the mine mouth and transport it to thousands of destinations. Because the railroads are the largest customers of the bituminous industry, and because coal—anthracite and bituminous—constitutes one-third of the railroad's freight, the problems of the two are closely interwoven and their interests interdependent. Not only does irregularity in coal output mean serious fluctuations in revenue but excessive irregularity imposes impossible traffic demands on the railroads. On the other hand, interference with rail transportation means a corresponding stoppage of output for the mines and shortage of fuel for the consumer. No solution of the coal problem can be found that does not recognize this community of interest between coal and transportation. But this community of interest, though simply stated is not simple upon examination. The movement of coal by rail and water is complicated by variations in freight rates, arbitrary differentials and competition between different coals and between carriers.

"Nor does the coal industry end with transportation. To connect the thousands of producers, big and little, with more than 90,000 buyers of carload-lot coal scattered over 48 states requires a widespread system of wholesale marketing. Sometimes this marketing is reduced to the simplest terms, as when a steel plant or railroad buys a mine and consumes its entire output. Sometimes it is conducted by the selling department of a large operating company. Sometimes the task of bringing together producer and consumer is performed by an independent wholesaler or selling agent. There are some hundreds of large wholesalers and a much greater number, perhaps 3,500 in all, of smaller middlemen. Like the business of running mines, the business of selling has its problems and, like mining, it has also its abuses.

"The final link in the chain of coal supply is the retailer, who receives coal in carload lots from car or yard storage and delivers it in smaller quantities to the consumer. There are some 38,000 retail coal dealers, most of them conducting a small business. They handle about 130,000,000 tons of coal, or 14 per cent of the bituminous and two-thirds of the anthracite produced.

This commission has reason to believe that an agreement will be reached in the near future that will avert any widespread cessation of mine operation in the union fields on April 1, thus assuring the needed coal supply for at least another year.

"Combined charges of the railroad, the wholesaler, and the retailer in most localities exceed the price of the coal at the mines. Therefore it is readily seen that the problem whether the transportation and marketing charges are just and fair is of the utmost concern to the consumers of coal.

"*Deficiencies in Service.*— The widespread public dissatisfaction with the service rendered by the coal industry is not confined to matters of shortage and price, for a train of unfortunate consequences has followed those recurring periods of scarcity: Deterioration in the quality of fuel delivered; congestion of railway traffic, necessitating the neglect of other freight to give preference to coal, to the serious harm of other business; and breakdown of mutual confidence of producers and consumers of coal as expressed in the customary contractual relations.

"How many there are we do not yet know, but there are certain mines which contract a part of their potential output, reserving the balance for spot coal. These operators guard themselves against car shortage by clauses which compel them to fill their contracts only in proportion to the relative car supply. So in recent years, when speculators with contracts could get only a partial supply of cars, say 60 per cent, they would use only that percentage of available cars for deliveries upon their contracts, while the other cars would be used for spot coal; that is, they prorate their contracts with the sole purpose of having free coal for a higher spot market.

"The record of production and distribution of coal in recent years may be summed up in the word 'instability,' and this instability in the supply of one of the most fundamental of all raw materials has been an important cause in unsettling business and in delaying the return of normal times.

"(1) *Large Profits.*—It has been suggested to us that one of the causes of high prices of coal is profiteering. There has been profiteering in the sense that grossly exorbitant profits have been taken at times by many operators, brokers, and retailers; profits that have been disproportionate to the cost of the coal or the service rendered or the risk incurred. But this commission has not yet obtained the figures for the past ten-year period specifically required by the act in order to settle this question. A thorough examination of the profits of production and distribution, including the revenue derived from associated enterprises, is already under way.

"(2) *Labor Difficulties.*—Others attribute the instability in the coal industry primarily to labor troubles. There can be no doubt that two of the three periods of high prices since 1916 have been caused largely by labor troubles. In the first period of scarcity—August, 1916, to March, 1918—there were no strikes of consequence and therefore some other explanation of the high prices and distress must be found.

"The second period of runaway prices, November, 1919, to late in 1920, was originally caused by a nationwide strike of miners beginning November 1, 1919. In this case the shortage created by the strike was aggravated by difficulties in transportation resulting in part from severe weather and in part from a strike of railway switchmen, and was further intensified by an unprecedented demand for export and by boom times at home.

"In the third period of shortage and high prices from which we have not yet emerged, the primary cause was a nationwide suspension of mining, involving practically all union men, which closed the anthracite region completely and shut down two-thirds of the capacity in the bituminous fields of the United States and Canada. As the merits of that suspension, whether it more resembled a 'strike' or a 'lockout', the commission expresses no opinion in this report. The point of immediate interest is that, as before, the effects were prolonged and intensified by transportation troubles until prices rose alarmingly and industrial plants began to close.

"We may refer to the unfortunate and unusual coincidence of the general cessation of work in the union mines in the summer of 1922 with that of the railroad shopmen and other crafts within the same period. The former very largely curtailed the output of the

mines and the latter so affected transportation in the fall and early winter as to interfere seriously with the distribution of coal. The effect was seriously to deplete the usual supply of coal with which the country enters the winter.

"When work was resumed and the mines were once more turning out their product, it was found that the increased output could not be distributed apace with production, for the effect of one cessation of labor was not so quickly remedied as the other, and not even yet has the transportation equipment been restored to its former condition. With the shortage of coal and lack of railway facilities the fall season opened with general bidding for the supply on hand. Prices were forced up with the obvious effect on the public.

"Whatever the cause or the merits of the labor controversy, it is clear that an indefinite repetition of these crises in the production and distribution of coal would be intolerable. Industry and the home alike must be freed from the menace of constant interruption of their coal supply.

"The responsibility of settling its disputes rests primarily upon the industry. The commission appreciates not only the importance of this principle but realizes also that it is vested by the law creating it with no functions of mediation or arbitration and only when it had reliable information that the efforts of the parties in controversy to reach a basis of agreement were on the verge of failure did the commission feel constrained to offer its suggestions. With knowledge of the fact that a suspension was threatened on April 1, 1923, in the unionized bituminous coal fields, it could not sit idly by and not use its good offices to promote peace. It therefore warned miners and operators alike that the country looks to them to settle their own disputes and to reach an amicable agreement when the present contract expires. In this spirit the commission addressed the following telegrams to the joint meeting of operators and union miners at Chicago, on the third of this month:

The United States Coal Commission respectfully calls your attention to the fact that among the subjects assigned to it by the Congress of the United States for investigation is that of the causes which from time to time induce strikes in the industry. There is sharp conflict in opinions expressed to the commission as to whether the cessation of work on April 1, 1922, in the unionized bituminous coal fields of America was a strike by the miners or a lockout by the operators.

As the duly appointed representatives of operators and miners in the fifteen organized union districts, you have met for the purposes of finding a way to maintain peace in your fields. Failure to agree would create an intolerable situation. Such failure would inevitably result in most serious injury to the general business and common welfare of this country. All branches of the industry have promised this commission their co-operation in the discharge of its duties. The commission, therefore, in the public interest urges upon you the obvious necessity of promptly devising some plan whereby the mines affected by your conference will be kept in operation to the end that the revival of all industry be unchecked, the uninterrupted flow of commerce among the states be maintained, and the menace of an insufficient coal supply be averted.

Business halts while in doubt as to your action and awaits with anxiety the speedy and successful outcome of your labors!

You can contribute to the peace of American economic life by reaching a speedy agreement and avoiding further conflict in the fields under your control. Your agreement will spare the commission the necessity of fixing the blame for failure to adjust your differences.

[Signed] JOHN HAYS HAMMOND,
Chairman, U. S. Coal Commission.
Washington, Jan. 2, 1923.

The Congress of the United States, charged with the duty of legislation for the general welfare of the American people, has created the United States Coal Commission to investigate the coal industry and to report the facts which it may find and to make recommendations to assist the legislative branch of our government in its efforts to guarantee justice to all concerned, to stabilize the industry, and to keep the mines in uninterrupted operation.

This commission has not yet had time to ascertain the facts nor to reach any conclusions as to the merits of your controversies, but it is satisfied that delay in reaching an agreement is bad for the whole country and that every interested party would suffer a greater economic loss by the closing of your mines even for a comparatively short period than would be sustained by a continuance of your present agreement until April 1, 1924.

If therefore all efforts to reach an agreement fail the commission urges you in the interest of the common welfare to continue your present arrangement until April 1, 1924, by which time this commission expects to have found and reported fully all the facts over which your disagreements have arisen with recommendations to the Congress and by which time the Congress will have had opportunity to consider and take such action in the premises as it may deem wise.

We are seeking to promote industrial peace by ascertaining and publishing certain facts. The first group of these includes reliable data on wage rates and earnings, on the volume of employment, on the costs and profits of the industry, on the competition of other fuels and of coal produced by non-union mines.

A second group of facts required includes the effect upon the industry of provisions for the check-off of union dues, participation in management or limitation upon freedom of management, and other working conditions.

[Signed] JOHN HAYS HAMMOND,
Chairman, U. S. Coal Commission.
Washington, Jan. 4, 1923.

"In response to the above a telegram was received on Jan. 5 from Phil. H. Penna, chairman of the conference, as follows:

Your telegrams dated Jan. 2 and Jan. 4, addressed to the joint Reorganization Committee of Bituminous Coal Operators and Coal Miners, were given serious consideration by the operators in their meeting here today, after they had failed in their efforts to reach an agreement with the miners upon a method for future wage scale making.

The joint conference made earnest, serious and sincere effort to reach an agreement. The cumbersomeness of a nation-wide conference of bituminous-coal operators and coal miners, representing fifteen producing districts, made success impossible. The diversity of opinion and the divergence of interests in such a gathering is obvious to any competent observer.

The operators' proposal to the conference was the only one upon which agreement could be reached among themselves. We believe further it offered a practical and practicable solution of the difficulties. We regret that the miners could not agree with us on this proposal. No other solution could come from this conference.

As to renewal of the present arrangement with the miners, as requested in your telegram dated Jan. 4, a reading of the Cleveland agreement with the miners, dated Aug. 15, 1922, will disclose that the present conference has no power, jurisdiction or authority to take such action. The conference or conferences to consider this matter comes subsequent to the adjournment of this meeting. The arrangement of such conferences is being given consideration at this time.

"On Jan. 6 the following telegram was received from William Green, secretary of the conference:

Your telegrams directed to me as secretary of the Reorganization Committee, were read to the conferences of coal operators and miners. Each side decided to make reply. Both groups decided to make separate reply thereto.

The United Mine Workers' representatives were profoundly impressed with the advice and suggestions transmitted through your messages. Unfortunately, because of the diversity of interests represented in the conference it was impossible to reach an agreement upon the form and character of a wage scale conference.

You can be assured, however, that the situation is not hopeless but, on the contrary, it is reasonably certain that a wage scale conference will convene before the end of this month.

The United Mine Workers will diligently endeavor to reach a settlement of the wage scale at the earliest possible date.

"On Jan. 11 the following telegram was received from John L. Lewis, president of the United Mine Workers of America:

The United States Coal Commission has already been advised that the representatives of the miners and operators of the Central Competitive Field will meet in joint conference at the Pennsylvania Hotel, New York, on Thursday, Jan. 18, for the purpose of negotiating an agreement for wages and working conditions in the bituminous industry of that area. It is the sincere and earnest hope of the United Mine Workers of America that this joint conference may successfully and quickly accomplish that task. We are anxious to bring about a stabilization of the coal industry that will assure the American public and business and industry in general a steady supply of fuel for the future, and this can best be done by an agreement between miners and operators that will cover a period of two years or more. A contract for such a period would enable industry and business to make their plans for the future knowing that they would be safe from such interruptions to the coal supply as have occurred in recent years.

"The representatives of the United Mine Workers will enter the joint conference in good faith and with a sincere purpose to do their part toward affording such assurance. In the meantime the commission would be relieved of all anxiety as to whether there would be peace in the coal industry, and the Commission could carry on its investigations and reach its conclusions before the expiration of such agreement.

"While the Chicago conference to which the commission's telegrams were sent took no official action, it is seen from the above replies that definite steps were taken at Chicago and this commission has reason to believe that an agreement will be reached in the near future that will avert any widespread cessation of mine operation in the union fields on April 1, thus assuring the needed coal supply for at least another year.

"We are seeking to promote industrial peace by ascertaining and publishing certain facts. The first group of these includes reliable data on wage rates and earnings, on the volume of employment, on the costs and profits of the industry, on the competition of other fuels and of coal produced by non-union mines. All of these subjects the commission's staff is now studying, and the results of its investigations will be made public in supplementary reports to Congress as fast as they become available. Up to this time returns on costs are already received and are being analyzed from about 2,000 operators, representing about 40 per cent of the total bituminous output.

"A second group of facts required includes the effect upon the industry of provisions for the check-off of union dues, participation in management or limitation upon freedom of management, and other working conditions. This also involves investigation of what causes petty strikes resulting in costly stoppage of operations.

"Collective bargaining should rest upon reason rather than upon force. American law and American public opinion recognize the right to organize into unions and the right to work without let or hindrance. It is alleged by the mine workers that in Logan County, West Virginia; Somerset County, Pennsylvania, and elsewhere, free speech and peaceful persuasion have been denied, in violation of the law. It is charged by operators, on the other hand, that the agents of the union have resorted to violence in their efforts to organize the non-union fields and thereby to lessen competition of non-union coal produced at lower costs. We will investigate and report upon the methods used by union miners to organize these fields and the methods used by the operators to prevent such organization.

"(3) *Car Shortage.*—An opinion commonly expressed before the commission is that the primary cause of scarcity and high prices of coal is transportation deficiency. There have been recurring periods of 'car shortage,' and such periods have generally been accompanied by high prices of coal. There are many other causes for the inadequacy of transportation beside the absence of cars, such as lack of motive power, congestion of yards, terminal facilities, or gateways, single tracks where double tracks are needed, inability to co-ordinate movement of boats and cars at ports, strikes of railway labor, and severe winter storms temporarily blockading traffic. Any one of these elements may be responsible for what to the operator at a mine seems a simple 'shortage of cars.'

"Car shortage occurred at intervals before the war, but since 1916 it has appeared more frequently and for longer periods, and is effects upon prices and coal supply have been more serious. This increase in transportation disability as a factor interfering with the movement of coal is in part due to the depreciation of equipment under the strain of war and labor complications. This important subject—inadequacy of railroad equipment—is under careful study by the Interstate Commerce Commission as well as by this commission, and it is hoped that definite findings and recommendations can be made later.

"The so-called 'car shortage' is not always due to insufficient coal-carrying equipment alone. In part it has been due to an overload upon the transportation system beyond what that system could reasonably or properly be expected to bear. The period of coal shortage and high prices from the middle of 1916 to March, 1918, was marked by almost continuous complaint of lack of cars at the mines. But the volume of traffic thrown upon the roads as a result of the war exceeded anything in their previous history, and when by the summer of 1918 adequate preparation had been made to handle the traffic all current requirements for coal were met and an unprecedented surplus accumulated in storage.

"In the next period of shortage—November, 1919, to late 1920—the roads were called upon to make up for six weeks' stoppage in coal production caused by a nationwide miners' strike. On Nov. 1, 1919, the union bituminous miners stopped work, and when they resumed, on Dec. 13, the movement of coal was 26,000,000 tons behind the previous year. The railroads were then asked to make up the deficit and to do it on top of the regular current movement of coal and other freight. The extra load came at a time when the export business in coal was unprecedented and when general business was booming. Even so, the railroads could probably have met the demand had it not been for the severe storms of that winter and the switchmen's strike of the following spring. As it was, they established a new record for total volume of traffic handled, and by the end of 1920 the deficit in coal supply had been overcome and the price was again normal.

Short working time is the result of overdevelopment in the industry. There are more mines and more miners than the needs of the country require.

"Since the resumption of work, in August, 1922, after five months cessation, more bituminous coal has been offered for shipment than the railroads have been able to carry, but only by investing money in a transportation system vastly in excess of reasonable requirements may the people of the country expect the railroads to make up within a few weeks the consequences of the five month's suspension of a large part of the coal mining.

"At the beginning of 1923 the bituminous coal industry presents to the country its usual contradictions. The one complaint common to most of the coal mining territory is that of 'car shortage'; yet the outstanding fact is that in spite of a miner's election day and the Christmas holidays, these coal mines produced in December, 1922, over 46,000,000 tons of soft coal. An actual shortage of anthracite has kept domestic consumers on the verge of a buyer's panic, restrained only by the co-operation of the larger coal operators with the federal and state fuel distributors, yet the 46,000,000 tons of soft coal was probably sufficient for the country's needs for current consumtion, even in December, if evenly distributed. The fact that low coal reserves in the hands of the consumers are not being rapidly replenished doubtless adds to the fear of scarcity, yet a full-car-supply for the country's soft coal mines, as rated by the railroads, would have furnished transportation in December for more than 75,000,000 tons or 20,000,000 tons more than the country ever took from the mines in a single month. Plainly, '100 per cent car supply,' as based on such inflated ratings, would create a car surplus or a coal surplus far beyond the ability of the market to absorb.

"(4) *Overdevelopment.* — Already in our study we have come to see that underlying these immediate causes of scarcity and high prices—labor difficulties and transportation deficiency—are other causes; namely, the irregularity of demand and the overdevelopment of the mining industry. These basic factors apply directly only to bituminous coal but indirectly they affect anthracite as well, for anthracite is in competition with bituminous coal and the wage scale in the one industry is influenced by changes in the other.

"We find that in the bituminous industry since 1890 the mines have averaged, over the country as a whole, only 213 days out of a possible working year of 308 days. These averages, of course, show nothing as to the relative annual earnings of individual miners or their individual opportunity to work. In 1920, a year of active demand, the average time worked was only 220 days, and in 1921, the year of depression, it dropped to 149 days, with many districts showing a figure much below this average. Over a long period comparatively little of the time lost has been on account of strikes and that in the years when there are no strikes the aggregate time lost from all causes is about as great as in those when strikes occur. In the twenty-three years over which the statistical record of strikes extends, the time lost because of strikes has averaged 9 days a year, or less than 10 per cent of the time lost for all causes combined.

"The other attributed cause, lack of transportation facilities during the annual peak of railroad business, commonly known as 'car shortage,' enhances the cost to the consumer, but it does not explain the short working year for the miners. When the needed coal is supplied the miner gets it out at one time or another and his work takes so much time and no more. Short working time is the result of overdevelopment in the industry. There are more mines and more miners than the needs of the country require.

"A cause of part-time operations of the bituminous mines is the variation in demand for the product, in part annual and in part seasonal. In so far as the irregularity in demand is seasonal, greater in cold weather than in summer, the lost time in summer is unavoidable unless some means can be devised to encourage the storage of coal during the dull months. The seasonal fluctuation in demand varies greatly from one district to another; in some fields of the East it is unimportant; further West it is dominant.

"Moreover, our preliminary studies show that even in times of maximum demand the mines as a whole do not work full time. In other words, the mine capacity is in excess even of maximum requirements. Although the country has never been able to absorb

in a year more than 579,000,000 tons of bituminous coal, the present capacity of the mines is well above 800,000,000 tons.

"The steady increase in the army of bituminous coal miners during the last four years, notwithstanding a lessened demand for their product is also a fact that stands out in the statistical records furnished the commission by the U. S. Geological Survey. In 1918, the year of maximum coal output, when 579,000,000 tons were mined, 615,000 men were employed in the bituminous coal mines, nearly 622,000 the next year, over 639,000 in 1920, and in 1921 663,000 mine workers were employed in producing about 416,000,000 tons. To get a year comparable in soft coal output with 1921 we have to go back to 1910, when 417,000,000 tons were mined, and it is significant that in that year less than 556,000 mine workers were employed—or about a million more tons of coal with 100,000 fewer miners.

"The difference between 1910 and 1921 may be viewed by the consumer of bituminous coal somewhat as follows: The manufacturer who bought 10,000 tons of steam coal in 1910 paid for the year's labor of 13¾ mine workers, whereas if he bought the same amount of coal in 1921 he paid the wages of nearly 16 mine workers. This plainly is not progress, but the mistake must not be made of blaming the miner for a decreased output, for the average miner's daily output in 1921 was 4⅛ tons, taking the 8,000 commercial mines, large and small, in the United States, and in 1910 his daily output was about 3¾ tons, although this difference is attributable in part to the increased use of machines. But in 1910 the average bituminous coal mine was operating 217 days as against 149 days in 1921.

"This condition of overdevelopment in mines and of surplus number of miners is an underlying cause of the instability of the industry. It means unemployment and intermittent employment to the coal miner and a direct loss to him of earning power. It explains his need and demand for a day wage rate higher than the average for most other industries. It has also adversely affected the profits of the operator and imposed a burden on the consumer.

"The seasonal character of coal movement is a serious handicap to the railroads in those districts where it is the rule. If the peak demands of the mines are to be met the carrier must provide equipment for which there is no use in the off-season.

"The unequal distribution of work between mines, attributed by many persons to the assigned- and private-car system, is also being considered by the Interstate Commerce Commission at this time. By this system men in one mine may get perhaps only one day's work a week, and others, even in an adjoining mine, may get six days' work, causing discontent and strengthening the demands for higher rates of pay applicable to all.

"As for the public, the cost of maintaining an overdeveloped industry is reflected in the high price of coal. We do not know accurately the extent of burden, but it may well be measured by the cost of keeping in the industry an excess of perhaps 20,000 miners and their families and the excess investment in mines.

"The commission is convinced that there can be no permanent peace in the industry until this underlying cause of instability is removed. Diverse causes have apparently promoted overdevelopment and inquiries are in progress as to the relative importance, among others, of the following: The policy of railroads toward encouraging the opening of new mines and new mine fields as sources of revenue; car distribution rules that permit, if they do not encourage, larger capacity than the market obviously requires; the opening of new mines by large consumers; the establishment of freight rates that encourage the development of new fields; shifts in centers of consumption that abandon old fields and encourage new fields; the difference between union and non-union wage costs; large scale suspensions in the unionized fields; and irregularity of demand.

Collective bargaining should rest upon reason rather than upon force. American law and American public opinion recognize the right to organize into unions and the right to work without let or hindrance. It is alleged by the mine workers that in Logan County, West Virginia; Somerset County, Pennsylvania, and elsewhere, free speech and peaceful persuasion have been denied, in violation of the law. It is charged by operators, on the other hand, that the agents of the union have resorted to violence in their efforts to organize the non-union fields and thereby to lessen competition of non-union coal produced at lower costs. We will investigate and report upon the methods used by union miners to organize these fields and the methods used by the operators to prevent such organization.

"(5) *Coal Storage.* — A preliminary survey indicates that much can be done to overcome irregular demand by encouraging the storage of coal, and the commission cannot stress too strongly the great advantage of coal storage during the spring and summer for fall and winter use. This recommendation should apply to all consumers of coal—the railroads, the public utilities, the industries, and the home—and on the measure in which it may be adopted will largely depend the evenness of distribution and the cost of coal to the public during the season of heavy consumption. In addition, it will contribute to more continuous operation of the mines during the summer, distributing employment more evenly throughout the year, thus tending to stabilize the industry. Coal storage, generally adopted by the consumer, large and small, would benefit the carrier systems of the country by equalizing their load. It should have the effect of reducing the price of coal to the consumer.

"The way in which to reduce the overdevelopment of the mining industry is fraught with so many complications, not all of which are evident at first glance, that the commission has not yet had time to ascertain sufficient facts on which to base any recommendations now to be made to the Congress. While it might be expected that in an overdeveloped industry aggressive competition would have driven out mines with high producing costs and forced prices to the consumer down to a minimum, so many such complex factors have operated to prevent the free play of economic forces that a very detailed and comprehensive investigation is required before a valid conclusion can be reached.

"The inquiry involves the whole question as to what is best for the people, free competition, government or private ownership, regulation or control in the coal industry. Should the operators in given areas be permitted to combine so that the low-cost mines would furnish the product to the people and the high-cost mines kept in abeyance to meet an emergency, properly regulated as to price and profit by some governmental agency, or should this prime necessity of life and business be left wholly to open competition in the market? This problem is of so great moment, with reference not only to theories of government but also to the economic life of the the Republic, that the view of the commission must be left to its final report.

"There can be no satisfactory agreement as to wage rates and no lasting peace between operators and men unless steadier employment can be provided. There can be no satisfactory solution of our transportation problem as long as the railroads are subjected to sudden peak loads of coal traffic at the season when the demands of agriculture and industry are at their height.

"The commission believes that the public interest in coal raises fundamental questions of the relation of this industry to the nation and of the degree to which private right must yield to public welfare. It may be that both private property in an exhaustible resource and labor in a public service industry must admit to certain modifications of their private rights, receiving in return certain guarantees and privileges not accorded to purely private business or persons in private employ.

"JOHN HAYS HAMMOND, Chairman,
"THOMAS R. MARSHALL,
"CLARK HOWELL,
"GEORGE OTIS SMITH,
"EDWARD T. DEVINE,
"CHARLES P. NEILL."

"I approve, and if a qualified member of the commission would sign the foregoing report. While appointed and confirmed as a member of the commission, being a Federal judge, I could not lawfully at the same time hold the commissionership without authorization by Congress. But at the request of the President and of the commission I have been present and advised with the commission in all its proceedings, without having qualified as a member of it.
"SAMUEL ALSCULER."

Anthracite Output Hits Lowest Level Since 1902

Five Months Tie-up Cuts Total to 52,465,000 Net Tons in 1922 Compared with 90,474,000 Tons in Preceding Year—Operators Co-operate with Federal and State Officials to Hold Prices Down

BY W. A. WHITE

VIRTUAL paralysis of mining caused by the 163-day tie-up of the mines, of course, was the outstanding feature of the anthracite industry during 1922. Production records show how seriously the strike affected the output of hard coal—52,465,000 net tons was mined in 1922 as compared with 90,474,000 tons in 1921, and the output was less than in any of the years since 1902. Production during the last twelve years is shown in the following table:

ANTHRACITE PRODUCTION, 1911-1922, IN NET TONS.

	Million Tons		Million Tons
1911	90	1917	100
1912	84	1918	99
1913	92	1919	88
1914	91	1920	90
1915	89	1921	90
1916	88	1922	52

Early in 1922 production lagged because of market conditions. Even the approach of the strike failed to stimulate prices and demand, and it was not until well into March that there was much real buying activity. Retailers' stocks were as heavy as in the preceding spring and the feeling existed, as in the bituminous-coal trade, that "something would avert a long tie-up and make excessive stocking unnecessary."

Prices dropped lower and lower and early in the year independent steam coal was in distress much of the time and the larger producers ran heavily to storage. Even domestic sizes were placed in storage against the inevitable rush that was to come. The year opened with independent prices averaging approximately $5.96 for all sizes. Severe coal-burning weather raised this to $6.19 in the first 60 days of 1922, but the market failed to sustain this level, and even in the face of the strike the independent average dropped to $6.09 for March.

Aside from a few cars per day of small sizes dredged from the rivers, anthracite production was nil from April 1 until Sept. 11. Producers' storage tonnage was quickly moved and the independent product soared. Long before the strike ended producers were besieged with orders for delivery at the earliest possible moment, with price to be determined when mining was resumed.

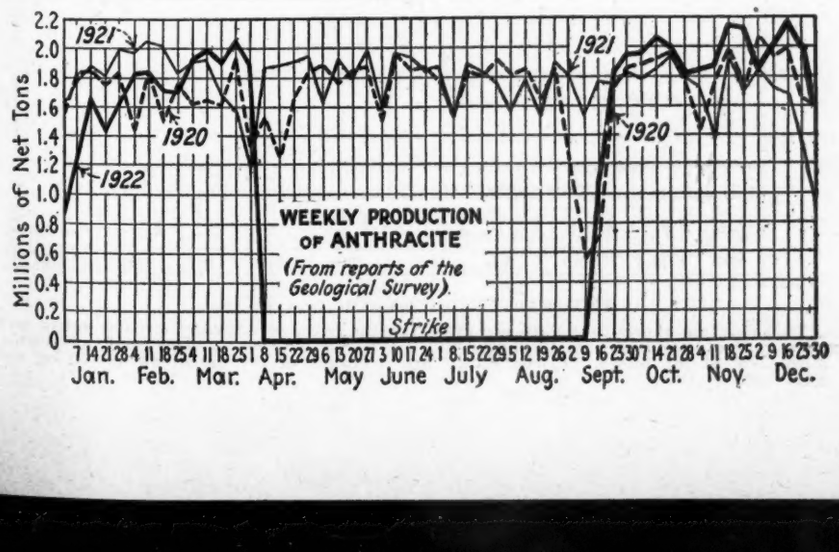
The rush to cover became a mad scramble when mining started and prices for independent tonnage increased by leaps and bounds. Winter scarcity of domestic sizes was foreseen and steps were taken to safeguard the supply and restrain exorbitant prices. On Aug. 1 the Governor of Pennsylvania appointed a State Fuel Commission of seven members, headed by W. D. B. Ainey, Chairman of the Public Service Commission, to cooperate with the federal authorities in the distribution of coal. At a joint meeting of this commission and Secretary Hoover, on Sept. 7, a Committee on Distribution of Anthracite was appointed, headed by S. D. Warriner, chairman of the General Policies Committee of the Anthracite Operators, with E. W. Parker as Director of Distribution. The committee immediately directed each producer to distribute his tonnage in the normal way, that each state receive approximately its proper share of current production.

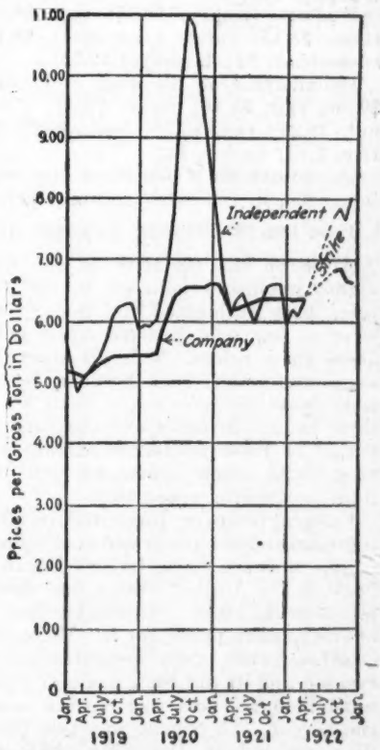
Mine prices became the subject of immediate attention and on Sept. 20 a decision of the Pennsylvania Fuel Commission was made public fixing $8.50 per gross ton as the maximum mine price for stove and chestnut sizes, but stating that a Fair Practice Committee, empowered by the commission, would consider the cases of operators unable to sell at such maximum. Independent quotations were $9@$9.50 at the time this announcement was made, although some coal moved as high as $14. Independent operators protested against the $8.50 maximum and threatened, if they failed to receive a price in excess of that announced by the committee, to ship their product outside the State of Pennsylvania and beyond the jurisdiction of that body. Examinations of production costs were made from time to time and individual operators' schedules raised in accordance with their cost data. Pending these examinations the independent

SPOT AND RELATIVE PRICES OF ANTHRACITE, WEIGHTED AVERAGE OF ALL SIZES
Per Gross Ton f.o.b. Mines, 1921-1922

	1921			1922		
	Company	Independent	Relative*	Company	Independent	Relative*
Jan.	$6.57	$8.22	251	$6.34	$5.96	221
Feb.	6.56	7.54	243	6.33	6.19	223
Mar.	6.31	6.58	227	6.33	6.09	222
Apr.	6.18	6.10	218	6.33	6.30	224
May	6.20	6.32	221		Strike	
June	6.23	6.44	223		Strike	
July	6.29	6.20	222		Strike	
Aug.	6.32	5.97	221		Strike	
Sept.	6.35	6.28	224	6.81	7.67	251
Oct.	6.35	6.53	227	6.85	7.83	253
Nov.	6.35	6.58	228	6.62	7.66	246
Dec.	6.35	6.58	228	6.61	8.02	249

* Relative price is comparison with average spot prices in the 12 months preceding the war, July 1913, to June, 1914.





SPOT PRICES OF ANTHRACITE, WEIGHTED AVERAGE, ALL SIZES PER GROSS TON, MINES

operators were authorized to charge prices that were considered fair by the Fair Practice Committee of 1920.

As the year closed the Pennsylvania Fuel Committee approved a final set of fair prices for individual operators as shown in the accompanying table of prices.

Fully two weeks elapsed after mining was resumed before the old-line companies announced their new price circulars. Tonnage held at terminals pending price determination was released by the publishing of temporary prices ranging $7.75@$8.35 for domestic coal. Increases of 15c@30c as compared with latest pre-strike quotations were made, presumably to cover the Pennsylvania state production tax.

Company Quotations

Following are the company quotations per gross ton f.o.b. mine as quoted on the New York market, announced after the resumption of mining:

Lehigh Valley—Broken, $7.90; egg, $8.10; stove, $8.15; chestnut, $8.15; pea, $6.15; buckwheat, $4; rice, $3; barley, $2.

Williams & Peters (Erie)—Broken, $7.75; egg, $7.75; stove, $8; chestnut, $8; pea, $6.15; buckwheat, $4; rice, $3; barley, $2.

Lackawanna — Broken, $7.75; egg, $8; stove, $8; chestnut, $8; pea, $6.15.

Lehigh & Wilkes-Barre Coal Co.—Broken, $7.75; egg, $8; stove, $8; chestnut $8; pea, $6.15; buckwheat $4; rice, $3; barley, $2; boiler, $2.50.

Lehigh Coal & Navigation Co.—Broken, $8.10; egg, $8.35; stove, $8.35; chestnut, $8.35; pea, $6.20; buckwheat, $4; rice, $2.75.

Hudson—Broken, $8.15; egg, $8.15; stove, $8.15; range (new size) $8.15; buckwheat, $4; birdseye, $2.75.

Philadelphia & Reading — Broken, $7.90; egg, $8.10; stove, $8.20; chestnut, $8.20; pea, $6.20; buckwheat, $4; rice, 2.75; barley, $2.

Quotations on steam sizes also were increased, in line with soft-coal prices.

Fair Prices Usually Adhered To

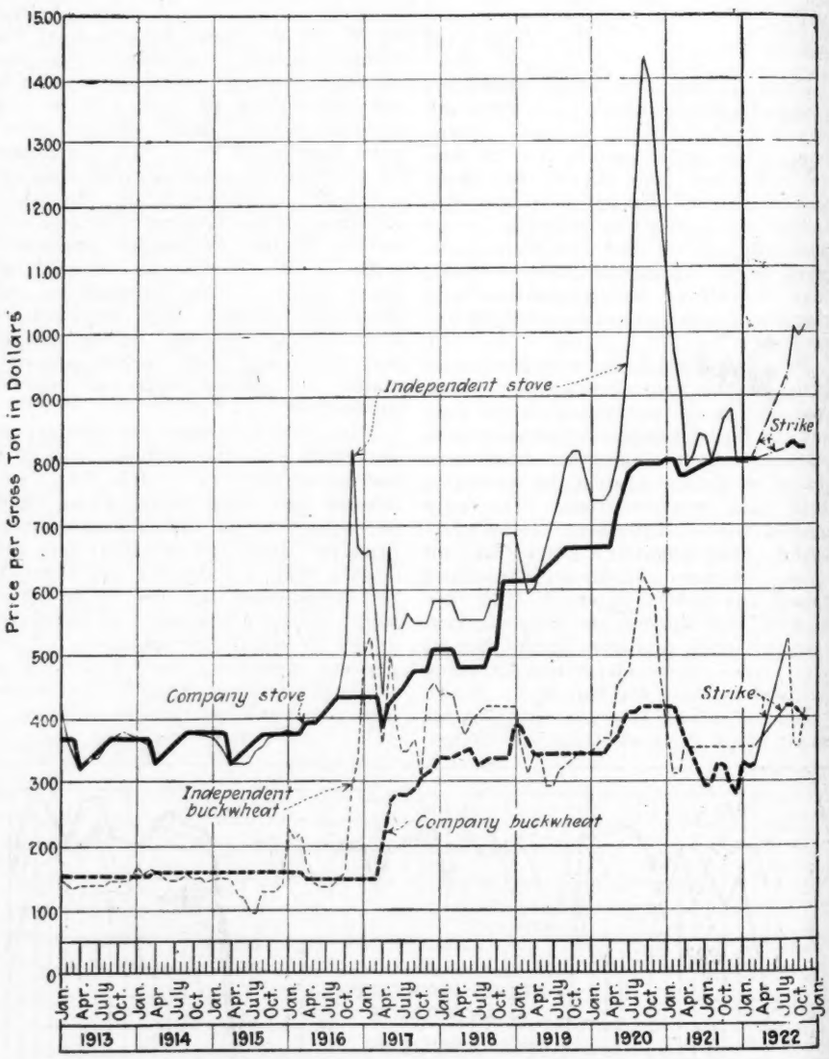
Although the majority of the individual operators adhered to the fair price lists authorized for them, there were a few who insisted upon going above these prices. This premium tonnage was small, both because dealers were loath to pass extra costs on to their household trade and the capacity output of these producers amounted to very little when compared with the total anthracite production.

Canada, however, presented an alluring market for high-priced coal. Early in the autumn these buyers began to flock to the United States and doubtless weaned away considerable coal by offering fancy prices for it. When cold weather came, their importuning increased and so did their scale of prices until $14@$16 coal was moving across the border. So urgent was this Canadian demand in December that cash payments were made before the coal was loaded—another inducement to insure prompt order filling. Naturally this augmented flow of coal away from domestic points where it was urgently needed is causing much complaint and some attempts are being made to stop it.

Car shortage, which played such havoc with the bituminous-coal industry, had little effect in the anthracite region. There was, however, an embarrassing variety of equipment placed for loading, some of it of a type which retarded production. The late summer and autumn was marked by one of the worst droughts in the history of the anthracite industry. In order to operate it was necessary in many cases to haul fresh water in tank cars, and this made maintenance of production difficult and added to the operating expense.

The U. S. Supreme Court in the last week of November upheld the Pennsylvania Anthracite Tonnage Act of 1921. This act, which places an additional burden on anthracite consumers both within and without Pennsylvania, fixes a tax of 1½ per cent of the market value of the coal at the mine, when prepared for market, became effective July 1, 1921, and the estimated amount of tax due by the end of that year was $3,273,840.61. Pennsylvania authorities estimate a yearly yield from this tax of around $7,000,000, which probably levies 15c on each ton of domestic fuel produced. This tonnage tax was tested out in the Dauphin County Court at Harrisburg, decision upheld, appealed to the Pennsylvania Supreme Court, where it was again upheld. Finally, the U. S. Supreme Court sustained the state court and upheld the distinction between anthracite and soft coal as a legitimate one for tax purposes.

The Kohler mine-cave act, with which the Fowler act is linked, was upheld by the Pennsylvania Supreme Court. The former gave wide discretionary powers to municipal officers over the mining of hard coal within municipal limits and made it a criminal offense to conduct mining operations which result in injury to surface property or to individuals on the surface. The Fowler act created a fund for the repair of surface damage due to mining and any coal company accepting the act was to pay regularly into the fund



ANTHRACITE PRICES FOR TEN YEARS

This diagram shows in dollars per gross ton the average company circular prices and average spot quotations on "independent" stove and buckwheat sizes of Pennsylvania anthracite at the mines. Prices shown are averages of the range as quoted on the New York market.

Fair Prices Established Jan. 1, 1923, by Pennsylvania Fuel Commission

The commission only fixed prices in cases where the mining companies had been charging more than $9.25 a ton, no prices having been set for those companies, including nine big anthracite operators, whose selling prices at the mines range $8.00@$8.35.

The prices which have been established by company operators, f.o.b. mines, are as follows: Glen Alden Coal Co., $8; Hillside Coal & Iron Co., $8.25; Hudson Coal Co., $8.25; Lehigh Coal & Navigation Co., $8.35; Lehigh Valley Coal Co. and Coxe Bros., $8.15; Lehigh & Wilkes-Barre Coal Co., $8.00; Pennsylvania Coal Co., $8.25; Philadelphia & Reading Coal & Iron Co., $8.30, and Scranton Coal Co., $8.25. Other operators' prices follow:

OTHER PRODUCING COMPANIES

Price, Gross Tons

1920 Output	Operator	f.o.b.	Mines
451,668	Alden Coal Co.	$10.00	Incl. 20c. com. to Whitney & Kemmerer
128,281	Archbald Coal Co.	12.00	Incl. selling costs
56,975	Bald Mountain Coal Co.	9.50	Incl. 20c. com. to Whitney & Kemmerer
29,126	Bergen Coal Co.	12.00	No selling com. to be allowed; includes $1.50 for hauling mines to cars
242,658	Buck Run Coal Co.	10.50	25c. selling com. to be added
5,618	Butcher Creek Coal Co.	11.00	Does not provide for com.
34,351	Carney & Brown Coal Co.	11.25	Selling cost incl.
75,069	Central Coal Co., W.-Barre	12.00	.....
73,930	John Conlon Coal Co.	10.25	To which a com. of not exceeding 25c. may be added
.....	Cullen Fuel Co., Inc.	12.00	No com.
202,446	Darkwater Coal Co.	11.00	25c. com. to be added
183,809	East Boston Coal Co.	12.00	Incl. com.
271,461	East Bear Ridge Collieries	11.00	Com. of 25c. to be added
56,839	East Point Coal Co.	12.00	.....
61,290	Ebans Colliery Co.	9.25	.....
216,160	Excelsior Coal Co.	9.25	.....
191,114	Haddock Mining Co.	10.50	.....
24,787	Humbert Coal Co.	11.50	No com. allowed
40,874	M. S. Kemmerer & Co.	10.00	Incl. 20c. com. to Whitney & Kemmerer
975,411	Kingston Coal Co.	9.75	Com not to exceed 25c.
128,221	George F. Lee Coal Co.	10.00	Com not to exceed 25c.
277,589	Leggitt's Creek Anth. Co.	11.50	Incl. com.
.....	Madeira, Hill & Co.	10.50	Incl. selling costs
284,079	Connell Anth. Mng. Co.	9.25	
494,164	Mt. Jessup Coal Co., Ltd.	10.00	Incl. 20c. com. to Whitney & Kemmerer
67,951	Nay Aug Coal Co.	12.00	Com. not to exceed 25c.
277,865	Pine Hill Coal Co.	10.50	Com. of 50c. may be added
179,481	Oak Hill Coal Co.	10.50	.....
162,699	Pittston Coal Mining Co.	9.25	.....
15,545	Plymouth Red Ash Coal Co.	11.00	Com. of 25c. may be added
388,116	Price Pancoast Coal Co.	10.00	Incl. 15c. com.
158,889	Racket Brook Coal Co.	12.00	Com. not to exceed 25c.
97,999	Raub Coal Co.	11.00	Com. not to exceed 25c.
300,348	St. Clair Coal Co.	11.00	Additional 25c. for com.
144,048	Shipman Coal Co.	11.00	.....
84,391	E. S. Stackhouse Coal Co.	12.00	.....
1,438,448	Temple Coal Co. Kacka. Coal Co., Ltd. Northwest Coal Co. Sterrick Creek Coal Co. Mt. Lookout Coal Co. Harry E. Coal Co. Forty Fort Coal Co.	9.25	Incl. 20c. com. to Thorne, Neale & Co.
172,546	Traders Coal Co.	11.00	Com. of not more than 25c.
155,072	Treverton Colliery Co.	11.50	Not to exceed 25c. com.
198,411	A. S. Van Wickle Estate	11.00	.....
118,813	J. S. Wentz Co.	9.25	.....

and be relieved of liability for monetary damage. This act was not accepted by operators and the Kohler act was deemed so strict that a number of mines in the Scranton district have been closed for nearly a year rather than take chances by operating. The United States Supreme Court on Dec. 11 declared the act unconstitutional.

Another disturbing feature during 1922 was the effort of Schuylkill and Northumberland counties to greatly increase the taxation on anthracite properties under the regular triennial assessment of 1922. Final settlement of these matters is still pending. Coal lands in Schuylkill County given a total valuation for taxation purposes in 1921 of $62,348,514 were placed at $437,878,684 under the triennial assessment of 1922; Northumberland County's 1921 figures of $24,134,661 were changed to $50,553,541 by the county authorities.

Quick recovery of mining following the strike settlement was possible as maintenance work had been continued with good effect. But even this feature was insufficient to overcome the tremendous handicap imposed by the long idleness.

ANTHRACITE SHIPMENTS, BY MONTHS

(In Gross Tons)

	1921	1922
January	5,740,538	4,848,053
February	5,966,101	5,239,014
March	5,737,771	6,778,667
April	5,967,465	
May	5,793,895	
June	6,031,937	
July	5,462,760	4,507,132
August	5,575,115	
September	5,519,412	
October	5,872,783	6,567,928
November	5,314,014	6,420,102
December	4,635,922	*6,454,876
Totals	67,617,713	40,815,772

*Estimated

ANTHRACITE PRODUCTION BY WEEKS, 1921–1922

(In Net Tons)

Week Ended	1921	1922
Jan. 7	1,597,000	1,242,000
Jan. 14	1,895,000	1,643,000
Jan. 21	1,819,000	1,443,000
Jan. 28	1,999,000	1,607,000
Feb. 4	1,985,000	1,811,000
Feb. 11	2,048,000	1,822,000
Feb. 18	2,010,000	1,703,000
Feb. 25	1,816,000	1,701,000
March 4	1,902,000	1,913,000
March 11	1,925,000	1,982,000
March 18	1,687,000	1,907,000
March 25	1,564,000	2,095,000
April 1	1,157,000	1,896,000
April 8	1,865,000	9,000
April 15	1,885,000	6,000
April 22	1,903,000	6,000
April 29	1,945,000	5,000
May 6	1,663,000	6,000
May 13	1,938,000	7,000
May 20	1,794,000	8,000
May 27	1,988,000	9,000
June 3	1,573,000	8,000
June 10	1,963,000	13,000
June 17	1,941,000	22,000
June 24	1,847,000	24,000
July 1	1,868,000	25,000
July 8	1,525,000	23,000
July 15	1,876,000	31,000
July 22	1,837,000	27,000
July 29	1,750,000	27,000
Aug. 5	1,772,000	27,000
Aug. 12	1,772,000	29,000
Aug. 19	1,529,000	39,000
Aug. 26	1,893,000	36,000
Sept. 2	1,770,000	36,000
Sept. 9	1,483,000	50,000
Sept. 16	1,749,000	1,107,000
Sept. 23	1,725,000	1,863,000
Sept. 30	1,802,000	1,947,000
Oct. 7	1,764,000	1,959,000
Oct. 14	1,813,000	2,075,000
Oct. 21	1,910,000	2,003,000
Oct. 28	1,751,000	1,804,000
Nov. 4	1,689,000	1,839,000
Nov. 11	1,350,000	1,863,000
Nov. 18	1,879,000	2,191,000
Nov. 25	1,650,000	2,174,000
Dec. 2	1,815,000	1,819,000
Dec. 9	1,675,000	2,038,000
Dec. 16	1,637,000	2,197,000
Dec. 23	1,316,000	1,976,000
Dec. 30	851,000	1,560,000

Distribution of Lake Cargo Coal (Bituminous) Loaded at Lake Erie Ports, Season 1922, Compared with Previous Seasons*

(In Net Tons)

Destinations	1922 Total for Season	1921 Total for Season	1920 Total for Season	1919 Total for Season	1918 Total for Season
Lake Superior Ports					
Duluth Superior and Two Harbors	5,406,912	8,679,763	7,774,764	7,806,277	10,022,016
Ashland-Washburn	457,944	514,545	604,062	589,705	914,389
Copper Range (1)	602,216	572,738	641,039	776,194	1,427,885
Marquette	233,338	140,596	310,422	233,313	359,989
Ft. William, Pt. Arthur and Jackfish	1,890,918	1,968,322	906,978	1,533,084	2,046,866
Other Lake Superior Ports	11,412	37,750	58,074	61,167	108,091
Totals	8,602,740	11,913,714	11,295,339	10,999,740	14,879,236
Lake Michigan Ports					
Milwaukee-Racine	2,482,401	2,759,327	2,578,085	3,256,650	3,607,347
South Chicago, Ind. Harbor and Gary	1,494,641	1,698,614	1,180,749	1,811,310	1,487,816
Sheboygan to Escanaba (2)	1,341,781	1,493,721	1,500,905	1,413,722	2,037,776
Other Lake Michigan ports	166,968	220,951	199,780	202,565	273,987
Totals	5,485,791	6,172,613	5,459,519	6,684,247	7,406,926
St. Mary's River ports					
Detour and Lime Island	584,684	244,943	397,579	196,664	428,460
Sault Ste. Marie, Can	413,494	751,839	1,092,428	809,548	1,143,096
Sault Ste Marie, American	91,548	90,814	164,915	150,835	159,351
Totals	1,089,726	1,087,596	1,654,922	1,157,047	1,730,907
Lake Huron ports	197,648	232,483	211,166	297,957	376,268
Detroit & St. Clair River ports	1,112,325	1,137,140	1,288,970	713,188	1,024,125
Lake Erie Ports					
Buffalo-Fairport and Toledo	1,078,654	244,116	53,758	67,101	131,683
Other ports (regular)	166,898	91,644	43,422	48,384	42,878
Totals	1,245,552	335,760	97,180	115,485	174,561
Georgian Bay ports	574,103	766,149	1,008,473	751,583	1,195,328
Welland Canal, Lake Ontario and St. Lawrence River ports	214,257	766,925	1,392,786	994,094	1,365,966
Grand totals	18,522,142	22,412,380	22,408,355	21,713,341	28,153,317

(1) Hancock, Houghton, Hubbell, Lake Linden, Portage and Torch Lake.
(2) Escanaba, Green Bay, Marinette, Menominee, Manitowoc and Sheboygan.
* Compiled by Ore & Coal Exchange, Cleveland, Ohio; H. M. Griggs, Manager.

Strike Runs Violent Course for 137 Days

Hampers Industry Almost as Much as War—Miners Win Wage Demands and Stave Off Arbitration, Which Constitutes Victory—But Industry May Benefit Vitally from Coal Commission's Work

By E. W. Davidson

THE strike of 1922 paralyzed the union coal fields of America for four months and fifteen days beginning April 1, exhausted the country's monumental soft-coal stock of more than 60,000,000 tons in spite of non-union production that ran as high as 5,000,000 tons a week, and disturbed both the industrial and economic structure of the nation as nothing has disturbed it in years except the Great War. The conflict was a victorious one for the United Mine Workers of America in the sense that the union forced the continuance all winter of war-time wages and successfully resisted wage arbitration. The operators were the losers in the sense that they lost every important point for which they contended, were more than ever maligned by the public for soaring coal prices and fuel shortage, and because they failed absolutely to develop any unity or cohesive strength among themselves.

The country as a whole and possibly the industry as a whole, however, may have won something vital out of all the travail of 1922 because the government was moved to create the United States Coal Commission, which is now making a study of all phases of coal with a thoroughness never equalled in this country. If its recommendations are sound and put into practice, miners, operators and the public may have won future content that will be worth the price paid during 1922 in losses, suffering and violence.

Two Refuse to Attend

At the very outset of the year two of the important operator elements in the Central Competitive Field—southern Ohio and western Pennsylvania—declared they would not attend the usual four-state scale meeting, scheduled for Pittsburgh, Pa., Jan. 6, because they were determined upon separate district negotiations. This was the first bombshell dropped into the mine-labor situation, which promptly grew strained. The fact that Illinois, which, with Indiana, composed the balance of the four-state wage-making field, wrote John L. Lewis that it would meet only if a majority of the field did, contributed little toward peace and a settlement.

Confronted by the three important refusals to attend the Pittsburgh meeting, Mr. Lewis, on Jan. 4, called it off and notified all those who had accepted that he was sorry the session could not be held. He said, however: "Representatives of the miners will hold themselves in readiness to take part in such a meeting whenever it becomes possible for them to do so." He asserted that all operators in the Central Competitive Field were violating their agreement by not attending the meeting and declared that "in due time circumstances will compel such a meeting."

In the first weeks of the year the anthracite labor situation was agitated by two factors: The mines were running low because of heavy stocks throughout the country—which set up a good deal of union propaganda that the operators were deliberately trying to starve the miners into a 20-per cent wage reduction—and the miners in various parts of the field were industriously resolving for wage increases varying from 30 to 48 per cent.

Indicating the necessity for a general downward trend of miners' wages around the country, wages in southeastern Kentucky and eastern Tennessee had already been ordered reduced 20 per cent by the permanent arbitration board for that region. No less than thirty mines there had previously reduced wages to the 1917 scale.

Baltimore Meeting Futile

In the Georges Creek and Upper Potomac fields a real effort was made to get a wage adjustment without a strike but after three days of conference in Baltimore nothing had been accomplished. The miners wanted a two-year contract. The operators refused. The operators proposed an agreement without the provision confirming the U. S. Bituminous Coal Commission award. The miners refused. The miners proposed that the old agreement be continued. Then they withdrew that proposal. Finally, with nothing done, the meeting adjourned, leaving about 90 per cent of the Maryland coal fields on a distinctly unsatisfactory basis, unable to sell coal that was produced by miners paid $1.31 a ton for pick work and $7.42 a day for eight-hour day workers.

In the New River field the union lost much prestige among its own members by its refusal even to consider a wage reduction. By the middle of January about 100 mines in that field—virtually the entire field—had made a reduction of $1.40 a day and 10c. a ton in the mining rate, which meant a return to the 1917 scale. Many union locals in District 29 turned in their charters. The checkoff therefore was abolished and the field was practically on a non-union basis.

Early in January it became increasingly apparent that the government proposed taking a hand in the coal situation in case the dispute between miners and operators menaced the public. It was stated at the White House Jan. 13 that several members of the Cabinet were "particularly interested," meaning Secretaries Hoover and Davis.

The non-union operators of the country assured the government that in case of a strike they would be able to produce at least 6,000,000 tons a week and possibly 7,500,000. This was supposed to have had a distinct influence against government interference, which soon became the chief point of speculation in the whole situation. On Jan. 19 Secretary Hoover made a public statement warning the country that the stage was all set for an industrial conflict of the first magnitude. Then followed various political efforts at Washington.

Kenyon Makes His Report

Senator William S. Kenyon on Jan. 27 filed in the Senate his momentous personal report and set of recommendations for governmental action in the coal industry, following the investigation which his Committee on Education and Labor made into the mine-labor "war" along the borders of West Virginia and Kentucky. He classed coal as a public utility and therefore a proper resource for public control. He proposed the adoption of an "industrial code" for the settlement of disputes in the mining industry and that there be created a federal board of three miners, three operators and three men representing the public to adjudicate such disputes. His commission would have no judicial, executive or police power but would hear all sides of any important mine-labor dispute and publish the arguments, that the public might make its own decision.

In the "code" Senator Kenyon proposed that collective bargaining and the right of both miners and operators to organize be recognized and affirmed and that no strikes be called until "a hearing be held the determination of the facts and principles" made.

On Jan. 26 and Jan. 28 the Pittsburgh Coal Producers' Association and the southern Ohio coal operators each announced a new scale they were willing to pay to miners after April 1. The Pittsburgh scale, providing heavy reductions to 77c. a ton for thin vein and 68c. for thick vein pick mining and $4.60 a day for motormen, was offered as being 36 to 40 per cent higher than pre-war wages. The southern Ohio scale showed reductions of from 30 to 47 per cent from the existing scale. Pick mining would pay 77c. as compared with $1.11, machine mining 60c. instead of 94c. and day work $3.75 and $4 instead of $7.50. The announce-

ments of these scales provoked no direct answer from the union, which was demanding no reductions.

Early in February Phil Penna, secretary of the Indiana Bituminous Coal Operators' Association, made a public statement favoring a 30-per cent reduction in miners' wages and a scale made by the Central Competitive Field that could be altered at intervals during the life of the contract to conform to industrial conditions. William Mitch, secretary-treasurer of the miners in the Indiana district, opposed this scheme as one that "would make the operators dictators."

On Feb. 4 the Monongahela Coal Association, in the Scotts Run Field of West Virginia, with sixty-five mines, announced a scale effective April 1 providing a wage cut of 30 per cent and abolishing the check-off. A resolution passed Feb. 10 by the Southern Appalachian Coal Operators' Association in Knoxville, Tenn., declaring against the "closed shop" for that field and against the check-off, was taken to mean that operators there would refuse after April 1, to make agreements even by districts, but that every company would attempt to make its own agreement.

Shamokin Declares for Strike

The anthracite miners made their demands clear at the convention of the three districts in Shamokin, Pa., Jan. 17-21. Contending that "Mine workers have never been paid in a manner commensurate with their hard labor and hazardous employment," the convention decided to demand a 20-per cent increase in tonnage rates, a flat $1 a day increase for day men, restoration of the old differentials existing before the award of the Anthracite Coal Commission and sixteen other things. They authorized a strike April 1 if these were not granted. The General Committee of Anthracite Operators said this would add $1.30 per ton to domestic-coal prices.

With little prospect of agreement in sight joint conferences started in New York March 21 even as President Lewis, of the United Mine Workers, was issuing the national strike order while strike votes from the bituminous regions were still being counted. The only thing the first conferences produced was an agreement to keep 3,000 miners in the anthracite properties to maintain them during the strike about to start. The strike was to be a "suspension" as far as anthracite fields were concerned.

Hard-Coal Operators' Scale

By April 11 the negotiations between anthracite miners and operatiors had merely got to the point of the operators beginning to state their case. A joint subcommittee was doing the negotiating by this time. For weeks the miners tried to get the operators to declare what they were willing to pay. The operators merely persisted in refusing the miners' demands. S. D. Warriner, for the operators, on May 8 declared that setting a wage level acceptable to operators would merely be "trading," and this the operators would not do.

Finally on May 18 the operators formally refused the miners' demands and proposed: (1) Contract rates be decreased 18 per cent; (2) day rates for men be reduced $1.20 and (3) for boys 72c. "This general wage structure," said the operators, "represents an average decrease of approximately 21 per cent, and will, therefore, fully maintain the purchasing value of wages as established by the Anthracite Coal Commission of 1920." The signers were Mr. Warriner, W. J. Richards, W. L. Connell and W. W. Inglis. The miners declined this proposal May 28, saying that further negotiations would be fruitless unless the operators agreed to an increase in wages.

On June 2 the operators proposed arbitration by a commission to be named by the President of the United States. After consideration by the miners in convention at Hazleton, Pa., June 6-7, the miners rejected the new proposal because they said the duties of the commission were too loosely defined, because the commission appeared to be directed to adjust rates according to the operators' May 18 proposal, because no mention was made of the miners' three fundamentals: A living wage, an eight-hour day, and complete recognition of the union; and finally because royalties, freight rates and profits were not to be considered as well as wages.

Wait on Soft-Coal Pact

Negotiations dragged though anthracite operators conferred with miners and with Secretary of the Interior Fall at Washington briefly on July 1 at the time of the White House coal conferences with miners and operators which failed to end the strike. On Aug. 11, just before the bituminous strike ended, President Lewis told the Mayor of Scranton the miners were ready to confer with the operators but that the latter would not make a scale preceding that for bituminous fields.

After the bituminous strike was closed and a contract signed to March 31, 1923, at the old scale, the anthracite miners said they were willing to continue the old scale for two years in the anthracite fields. The operators would not. On Aug. 17 through Senator Pepper, of Pennsylvania, President Harding called both sides to Washington to confer. After five days of insistence by the operators upon a long-term contract with provision for periodic wage adjustment by arbitration, which the miners flatly refused, the operators offered to continue the old scale to March 31, 1923, if the miners would agree to let wages after that date be fixed by the Anthracite Board of Conciliation, first for one year and then, beginning March 31, 1924, for two years. If the board failed to agree then the scale was to be made by three men chosen by the U. S. Circuit Court of Appeals. The miners refused to accept this.

Finally after negotiations had been broken off Aug. 22 in Philadelphia and resumed Aug. 29 in Washington, due principally to the efforts of Secretary Davis and Senator Pepper, the miners agreed they would go back to work at the old scale until Sept. 1, 1923. On the last day of August the operators agreed to this provided they got a "mandate" from the public, since the public would have to pay the cost of continuing the high wages. This was published broadcast and the "mandate" came in the form of many telegrams from over the country and from President Harding. On Saturday night, Sept. 2, a tentative agreement was entered into. On Sept. 11 the strike was officially ended and the mines reopened for another year at "war wages."

The United Mine Workers framed its program of demands at the reconvened session of the 28th annual convention in Indianapolis, Feb. 14-18 and authorized the scale committee to conduct a strike referendum before April 1. In spite of the fact that the scale committee brought in a comparatively "conservative" program, including the "maintenance of the present scale of wages," an eight-hour day underground and adjustment of various inequitable differentials, before the radical element in the convention got through, the "conservative" program had been trampled. The demand that existing wages be maintained was not changed, but the six-hour day and the five-day week were jammed into the list to be demanded of the operators.

Two days after the convention Mr. Lewis, who had declared frequently that the miners did not want a strike, issued another call for a Central Competitive Field meeting with operators at Cleveland March 2. Eastern Ohio, Illinois and Indiana reluctantly said they would attend if the rest did. The rest—southern Ohio and Pittsburgh—refused as flatly as before. The operators in both those districts said they were willing to meet the miners of their own territories only. The miners' union then began polling its membership on the question of giving the international officers the right to call a strike at midnight March 31 in case no agreement was reached by that time.

Rail and Mine Men Conspire

Directly after the Indianapolis convention Mr. Lewis and his principal officers attended a joint conference at Chicago with officials of fourteen railroad brotherhoods and succeeded in forming a rather vague sort of coalition more or less along the lines laid down by Mr. Lewis in letters directed to all the rail brotherhoods early in the month.

As March opened the operators of Illinois began playing hard for a separate state meeting with their miners, hoping that a fracture between the Illinois miners and the international might develop into a schism and permit such negotiations. Then began a series of higgles and haggles on the part of President Farrington of the Illinois union district which ran all spring and summer and resulted in nothing. Far-

rington made vitriolic statements against Lewis but never quite broke away from Lewis' domination.

In the meantime developments all over the country were leading directly up to a general striks. Nine thousand union miners in the western Canadian fields declared they would strike April 1 if wage reductions were put into effect. The operators of the Kanawha field served notice on the union that if the men did not confer with them on wages for that region before March 11 the opportunity would be withdrawn and a lower wage scale would be announced for April 1. The miners refused on March 25 to make any kind of contract. So on March 29 a new scale showing a 30-per cent cut was anounced. In Colorado the miners and operators met March 4 for half an hour and made no progress. Immediately the operators announced a scale showing a cut of 30 to 50 per cent, effective April 1.

Secretary of Labor Davis on March 9 asked all Central Competitive Field operators to confer with the union even though they did nothing but review the situation. Not one goup changed position.

"Hopelessly Messed" Industry

The Federal Council of Chuches of Christ in America had a word to say on March 16, when it issued a public statement urging both miners and operators to confer. On the same day the American Federation of Labor declared the cause of the miners was just and that the "great labor movement" of the country would lend its "undivided and unswerving support." The miners of District No. 2 in Pennsylvania issued a public statement asking the people of the land to demand that the government investigate "the hopelessly messed coal industry." Attorney General Daugherty's statement of March 25 said that he had assured operators and miners that no action under the Sherman law would be instituted by the government against anybody who might confer by groups on a wage scale and working conditions. Representative Bland of Indiana introduced a bill March 23 providing for a commission of three to be appointed by the President to investigate and report on the coal industry with the idea of curing some of the ills of the existing situation by publicity.

On March 21, without waiting for the finish of the miners' referendum authorizing it and without waiting for end of anthracite negotiations, President Lewis of the miners declared a strike effectitve at midnight March 31. The strike was to include all union miners in the United States and Canada except Nova Scotia, where there remained a shred of hope, and western Kentucky.

The Indiana operators scale committee, in two efforts to get a conference with Indiana miner officials, were unsuccessful. The committee framed up a proposed scale with a wage reduction running from 30 to 40 per cent and without the check-off. This scale had a clause in it providing for alterations in wages during the contract. The miners would not look at it. Central Pennsylvania, southern Ohio and Pittsburgh operators all invited their men to confer separately in those fields. The miners refused in central Pennsylvania and southern Ohio regions and simply failed to appear at the scheduled Pittsburgh meeting, leaving the operators sitting there alone. The miners of the Kanawha-Fairmont field met the operators but refused to negotiate.

Thus the country came to April 1 and crossed the deadline into a strike that was destined to run four months and fifteen days. Only the non-union fields, western Kentucky, whose union contract held until April 1, 1923, and Colorado, which was changing to non-union, continued to operate. The very first week in West Virginia the Pocahontas, Tug River, Kenova-Thacker and Logan fields were unaffected. Winding Gulf worked 90 per cent and New River shut down. About a dozen Kanawha mines went on working at the 30 per cent reduced wage scale. Eighteen out of 264 mines in the Fairmont region began working "open shop" while 17,000 men struck. A scattering few mines in northern West Virginia operated. Operations continued in the Upper Potomac region under a 90 day agreement pending an adjustment. In Pennsylvania the mines worked almost full in Connellsville, Uniontown, Johnstown and Somerset County fields. Northeastern Kentucky and southwestern Virginia worked regularly and about half the mines of Tennessee that were working during March kept on. The union centered its pressure upon all those fields. In the non-union Connellsville region the union finally almost shut down the field. Various government efforts were made to get miners and operators of striking fields together in conference. First Representative Nolan, of the House Committee on Labor, tried it. His invitation to the operators got no results worthy of the name. During the early days of April and up to the 10th the committee held hearings at Washington on the situation. This gave both miners and operators a chance to air their cases.

But the Law May Not Be Broken

Because the operators persistently declared the government would not permit a four-state agreement, citing the indictments brought the year before against 225 miners and operators at Indianapolis, Attorney General Daugherty made his famous trip to that city to talk with Federal Judge Anderson. It was supposed he went there to get the indictments quashed. He stayed two days and went away without a word. The indictments were not quashed.

By the middle of April the strike had slipped from front pages of the newspapers into more obscure positions. To counteract union efforts at disorganizing West Virginia fields that were at work, operators got a series of anti-union injunctions issued by Judge McClintic in the District Court of the southern district of West Virginia.

Before April 15, Representative Bland, of Indiana, brought in a new government fact-finding commission bill extending the provisions of his previous bill. Two commission plans were suggested April 21 at a dinner of the Survey Associates in New York, one by Dr. Harry A. Garfield, Federal Coal Administrator in 1919, and Philip Murray, vice-president of the United Mine Workers. Dr. Garfield revived his 1919 suggestion for a commission for anthracite and a separate commission for bituminous, each to be supplied with complete statistics on cost of living by government agencies. Mr. Murray declared congressional action should end the strike and that a permanent commission be created to gather facts and work out policies for the coal industry. He said the miners would go back to work if Congress guaranteed the 1920 award of the Bituminous Coal Commission.

Resolutions by various miner groups to be loyal to their employers and posting of guards at some of the mines brought about the first rioting in the Connellsville region April 29. A mob attacked Tower Hill No. 1 mine, in the center of a coke territory the union had been trying desperately to organize. Two state police were shot and several men clubbed. Even women made a demonstration against the non-union men working at the mine. The state police squelched all this trouble.

Kentucky Coal Prices Climb

Early in May the Bland fact-finding commission bill was reported by the House Committee on Labor with modifications. Prices of coal, especially in Kentucky, had made such upward climbs along with general demand, that by the middle of May Secretary Hoover actively began his program of control that put real restraint on most fields thereafter.

On June 5 the Supreme Court's decision on the Coronado case proved an interesting topic in strike talk. The court reversed a previous decision of the Circuit Court of Appeals, Eighth Circuit, and held that the Coronado Coal Co. of Arkansas could not collect $600,000 for property damages in a 1914 strike, plus $25,000 attorneys' fees plus $125,000 interest from the United Mine Workers of the Arkansas district because the evidence did not prove that the union organization as a whole conspired to restrain commerce in violation of law. However the decision was important in that it made clear that unions can be sued "for torts committed . . . in strikes." The coal company asked a reargument.

Early in June there were various signs of a trend toward the ending of the strike. P. T. Fagan and William Petry, vice-presidents of the union in Pennsylvania and West Virginia respectively, declared in speeches that the strike would end by July 1. A small group of Ohio operators called on Secretary Davis at Washington, presumably urging a plan for quick settlement. But no miners would meet operators in district negotiations and the defections among operators were not important up to that time.

During the latter part of May and early June the union's grip on Connellsville appeared to weaken and at least 5,000 miners in central Pennsylvania went back to work during the last two weeks of May. In the Kanawha field, union since 1912, one-third of the total number of miners were working by June 20 at reduced wages.

By this time union officials, encouraged by a few northeastern Ohio operators, were feeling out the country with the idea of having a four-state wage conference with those scattered operators willing to make a scale. But Illinois and Indiana, once willing to meet, declared the time for that had passed. They would not take part in any four-state conference.

Numerous small disturbances occurred over the country. Attacks had been made so frequently upon little strip pits working in Indiana that finally a gang gathered and prepared to destroy the Drake mine near Terre Haute. Mrs. William Drake, wife of the mine's owner, stood off a crowd of 300 one night with a shotgun. Workers were attacked in Brownsville, in the Connellsville field of Pennsylvania, and injunctions were issued against strikers in the Scott's Run field of West Virginia and Somerset County, Pennsylvania.

Trouble in Utah, which had been brewing for two months with an occasional outbreak, finally developed into a big gun fight in Carbon County, the shooting up of a train and other violence which caused Governor Mabey to put the county under martial law. State troops in the field got the situation pretty well in hand and production increased some. The Governor warned operators he would not permit kiting of prices. Troops remained in the field until after the general strike was settled.

Miners Massacre Twenty-one

The massacre at Herrin, Ill., June 22 roused the country by its brutality and put the strike back on the front page of every newspaper. The Southern Illinois Coal Co., with a strip mine six miles south of Herrin, in "bloody" Williamson County, broke an agreement with the union and tried shipping coal with non-union labor under guard. A mob unhampered by local law officers, besieged the mine, took the 48 occupants in surrender and then shot and cut 21 of them to death in a barbaric orgy. The day before, President Lewis of the United Mine Workers had telegraphed that the strip miners ought to be treated like any other strike breakers. Officials of the state were charged with dereliction of duty.

In view of the fact that Williamson County is solidly union in its sentiments not an arrest was made for weeks. A coroner's jury blamed the coal company for the deaths and held nobody. Fear was in the hearts of the populace. But a special grand jury in September and October returned 416 indictments involving 72 men, charging murder, conspiracy to murder and like crimes. Most of the indicted men were rounded up at once. Many of them were union members and officials. The Illinois miners' union defended them and by a special assessment of 1 per cent of every Illinois miners' earnings beginning Oct. 1, a defence fund was raised. The state had no funds for such a special prosecution, so the Illinois Chamber of Commerce raised approximately $50,000.

The trials started in December after two months of difficult choosing of jurors. When the twelve men were finally seated in the jury box many of them were union miners and admitted contributors to the defense fund, which prompted observers to prophesy that no convictions could be obtained from such a jury. The state's case in the first trial—that for the murder of Howard Hoffman, one of the employees of the strip mine and one of the six tied by the neck in the Herrin cemetery—was in by Dec. 20 and the defense had put on a few witnesses when the court adjourned over the Christmas holidays, thus ending the case until the new year.

During late June the strike wore on apace. President Lewis, of the miners, conferred in Washington June 26 with the President and Secretary Davis, but no official announcement of results was published.

By July 1 the country's stocks had dropped to 20,000,000 tons of bituminous and no anthracite, and the consumption was estimated at 30,000,000 tons per month while production during June ran only a little over 20,000,000 tons. The United States Chamber of Commerce issued a warning that a coal famine was immediately ahead. All sorts of resolutions were introduced into Congress at Washington urging federal action to end the strike. Disturbances in western Indiana kept many small mines closed. The union established commissaries.

The first White House general conference of miners and operators started on Saturday, July 1, at the call of the President. Mr. Harding opening the conference by pointing out the seriousness of the situation from the standpoint of the American people and urging the two sides to come to an agreement. The conference remained in session all day Sunday. On Monday the session had accomplished nothing except that the operators proposed a redistricting of the country and district settlement by district arbitration boards to be appointed by the President. Disputes unsettled by July 15 would go to a national arbitration board. This the miners rejected and the session adjourned until July 10, the operators making it plain that if the miners did not agree to something by that time mines would be opened in various states for a test of industrial strength.

Orders a Return to Work

At the start of the July 10 meeting the President, perceiving that the conference was deadlocked, flatly proposed that the mines be reopened and the men go back to work, the old scale to be in effect until Aug. 10 pending the making of a new scale by that date by a commission of three operators, three miners and five representing the public, whose findings should hold until March 31, 1923. Anthracite operators, bituminous operators and miners each retired and considered the proposal all day.

It was freely said among operators that the President had called his conference at a most unfortunate time, for the miners had been practically beaten to the point of surrender.

The President, recognizing that both operators and miners were trembling on the verge of refusal, issued on July 15 a letter explaining his proposal further. This made no modification of the plan but appeared to indicate that a settlement on the old Central Competitive Field Basis was desirable and that the check-off should be continued.

The miners refused finally. The operators, after most vitriolic sessions among themselves, made a general reply, agreeing with the President upon the general principle of arbitration but permitting each group of operators to reply for itself. Most of the country in these separate replies accepted the President's plan, but Indiana and the unionized fields of Pennsylvania refused.

His efforts to settle the strike having failed, President Harding in disappointment on July 17 said to the operators: "I invite you to return to your mining properties and resume operations," a statement which caused a good deal of speculation as to its exact intent.

Order Is Promised at Last

The President wired twenty-eight governors to protect such operations as might resume. All but Governor Ritchie of Maryland and Governor Morrison of North Carolina replied favorably. Few if any operations started, however. The Governor of Michigan threatened to open a few mines to be run by the state. The union "would not permit it." Governor McCray of Indiana took over a poorly equipped stripping operation, surrounded it with a heavy guard and tried digging coal with little success. The little coal shipped to state institutions was said to have cost the state $20 a ton.

The most serious outbreak in a mining field except the Herrin massacre was an attack made July 17 by 300 men on the Richmond Mining Co.'s Clifton mine, near Cliftonville, W. Va., in which Sheriff Duval and five non-union men were killed. Weeks later 218 were indicted for this, 71 for first-degree murder. More West Virginia injunctions against interference with miners were issued at various towns. In Indiana masked and hooded Ku Kluxers beat up men at work.

During the first weeks of July President Harding was urged from various sources to have a coal investigation commission set up. A. M. Ogle, president of the National Coal Association, wired July 23 asking that a non-partisan board be put to work at once gathering facts.

By this time prices of certain coals, especially those of western Kentucky, where operators had refused to

abide by Hoover prices, had hiked skyward. Western Kentucky mine-run began leaping upward as much as $1 a day to $12 a ton and the market was demoralizing. Then the government's plan for controlling car supply under the direction of Secretary Hoover and the Interstate Commerce Commission went into effect.

By July 20 acts of violence had become so frequent in parts of Pennsylvania that Governor Sproul sent state troops into Washington, Westmoreland, Cambria, Indiana and Somerset Counties. In West Virginia the state authorities said they had unearthed a plot for a campaign of frightfulness against non-union miners following the attack on the Cliftonville mine. A train of miners was dynamited in Boone County.

About Aug. 1 strike developments began to take a definite turn. In Illinois, Frank Farrington, state president, first agreed to revive the question of state negotiation and called a state union convention to authorize it. Then he suddenly called it off and hurried to Philadelphia for the conference which President Lewis called with all his district presidents. While miners were returning to work in larger numbers in central Pennsylvania, the troop-guarded Pittsburgh region improved not at all.

President Lewis called a meeting to be held in Cleveland Aug. 7 of miners' representatives and operators of the old four-state field, evidently feeling that enough operators were ready to sign the dotted line so that such a conference could be held. When Lewis' invitation to this meeting went out the operators of Illinois held a meeting Aug. 4 proposing to President Farrington that the 92,000 miners of that state go back to work at the old scale pending arbitration, which was almost exactly the proposal of President Harding to the operators of the country. Farrington replied he could do nothing until after the Cleveland meeting.

All Invited but Few Came

So many groups of operators declined to go to Cleveland that the conference merely marked time for the first several days. Illinois, Indiana, Pittsburgh and southern Ohio all stayed away as the conference began. At the first session on Monday, Aug. 7, about 30 per cent of the four-state tonnage was represented and scattering operators from other fields. The Pittsburgh Vein Operators Association of Ohio was there, however, and Michael Gallagher, president of the association, was made chairman of the conference.

Even as the conference was making its inauspicious start a new element popped up. It was the Crews-Glasgow plan of settlement, worked out at Pittsburgh by Ralph Crews and W. A. Glasgow, attorneys for interests on both sides. The conference was adjourned in Cleveland for two days to give this plan a whirl, in the hope that more operators would be drawn in by its aid. Mr. Lewis was announcing day by day that he would not deal with a minority of Central Competitive Field tonnage but that more was surely coming in.

All that week Lewis held a skeleton of a four-state conference together in Cleveland while vigorous efforts were made to draw in more tonnage. Illinois and Indiana refused unless arbitration of the next wage scale was agreed to by the miners. They refused. This drove such northeastern Ohio interests out of the conference as Michael Gallagher and S. H. Robbins. A letter from President Harding supported the demand for arbitration.

Immediately a new conference was organized by the acceptance of representatives from central Pennsylvania, an outlying district, and other regions. The union was willing by that time to consider an adaptation of the Crews-Glasgow plan as worked out by T. H. Watkins who had been urging it from outside the conference for days. It provided for compulsory investigation and a fact-finding commission but not compulsory arbitration, which Mr. Watkins inveighed against. Thus the union abandoned its announced determination to deal only with the Central Competitive Field. Although all operators outside that field had been ejected from the conference the Thursday previous, on Monday, Aug. 14, they were taken in and the conference went into its final stage.

By evening of Tuesday, Aug. 15, the strike was broken. The contract negotiated provided that all signatories should resume mining at the old scale and conditions to March 31, 1923, as soon as they signed supplementary contracts. The other points in the agreement were:

(1) Participants of the conference agreed to send delegates to a Cleveland meeting Oct. 2 to appoint a commission of operators and miners to devise a method for future negotiations, to be reported back to the main conference Jan. 3, 1923.

(2) The Oct. 2 conference was to select a fact-finding committee.

(3) The conference participants agreed to meet Jan. 3 in conference to finally determine the method of future negotiations and to see that such negotiations were started by Jan. 8.

Come and Sign One by One

The signatories of this agreement at Cleveland were from scattered mining regions. Important ones in the central Pennsylvania field were Mr. Watkins' Pennsylvania Coal & Coke Corporation, the Clearfield Bituminous Coal Corporation and the Allegheny River Mining Co. These with several smaller operations signed up at once and went to work while 200 other operators in the same field held off for several days before they surrendered. The Southern Ohio Coal Exchange left the matter to its individual members to do as they liked. Eventually they all signed. In northern West Virginia the Consolidation Coal Co. and 50 others lined up on Aug. 17 while the remainder held out for a while. Many mines stayed on an open-shop basis. Georges Creek operators met Aug. 18 and refused to recognize the union. Connellsville operators also refused. The Pittsburgh operators held out defiantly after most of the country was working but capitulated Aug. 29. The following day the Pittsburgh Coal Co., acting independently, also signed.

After days of deliberation with President Farrington of that state, Illinois finally signed on Aug. 22, but would not agree to attend the Oct. 2 conference or make any other promises for the future except to resume mining at the old scale until March 31, 1923. Indiana deliberated awhile also, in an effort to find some way to avoid swallowing the union's entire dose, ending up by signing but not "approving" the Cleveland agreement. The Southwest followed on Aug. 23. On Aug. 28 British Columbia and Alberta made the Cleveland settlement but western Canada had to accept a 15-per cent wage cut.

Thus the bituminous coal strike ended in almost complete victory for the miners' union. The union maintained the existing wages and working conditions, the apparent dissolution of the Central Competitive Field was not necessarily final and the union had staved off wage arbitration.

Always Ready to Try Again

The Nova Scotia dispute, mainly between the British Empire Steel Corporation and its coal miners, which ran from Jan. 1 on, was not settled until two wage commissions had made their findings and an upheaval had taken place within the union of the Nova Scotia district. A board of conciliation headed by U. E. Gillen recommended a wage cut running from 12½ to 20 per cent in February. The union rejected this but some men went to work under the award. District Secretary-Treasurer J. B. MacLachlan advised them to "soldier" on their jobs. Chairman Gillen and another member of the conciliation board resigned and a new board took up the case, with D'Arcy Scott as chairman. On May 5 this board recommended a 20-per cent wage reduction. The miner minority, however, recommended an increase of 60 cents a day to $3.45. The district convention of miners refused to accept the majority recommendation though President Baxter of the district approved it. Baxter was charged by MacLachlan with "selling out" the union. He charged MacLachlan with bolshevism.

In August the men of the whole district struck. The companies offered an increase from $2.85 to $3.25 and a 10-per cent increase in contract rates, which the union demanded be increased 20 per cent. On Aug. 25 the companies finally raised the contract offer to 12½ per cent increase and the strike ended in some mines. Meantime, President Baxter had been beaten in a district union election by Dan Livingstone, who lives outside the district, and the radical element gained complete control of the district organization. On Sept. 18 the district settled complete with all operators on the $3.25 scale.

Immediately upon the settlement of

the strike in the United States upon the Cleveland basis, the Pocahontas Operators' Association advanced wages in their territory to the 1920 scale, thus putting the whole of southern West Virginia back on a war-time wage basis. It was estimated that the union had lost 25,000 members in West Virginia during the summer. In the Kanawha, Georges Creek and Upper Potomac regions the anti-union basis of employment was maintained in spite of violence and intimidation, which was held partly in restraint by injunctions.

On Sept 22 the government's fact-finding commission bill passed, so that when Oct. 2 rolled around and the second Cleveland conference of operators and miners started the plan for setting up a miner-operator fact-finding board was practically stalled.

"Peace" was the keynote of the Oct. 2 conference. In spite of previous refusals to agree to attend, operator groups from fifteen mining districts, covering practically all union bituminous territory, were there. The first day there was much violent disagreement between operator groups, especially against such leaders as T. K. Maher, Thomas H. Watkins and W. H. Haskins, who were credited with making the Aug. 15 settlement with the union possible. A peace address by President Lewis, of the miners, delivered in joint session appeared to have a soothing effect. He appealed to both sides to "bury the hatchet" in the interest of the industry and all concerned with it, indicating an astonishingly friendly spirit on the part of the union.

Although Mr. Maher was chairman of the original Cleveland conference, Phil, H. Penna, of Indiana, was made permanent chairman of the second one. Mr. Haskins, in an early meeting of the operators at the conference, made a fiery speech, declaring the "little group" which broke the strike on Aug. 15 intended to stand by the Cleveland agreement even if no other operators did, but when it became evident among the operators that the meeting was not going to be dominated by a "small minority," they all went into it and in three days the business was done.

Action of Conference

The conference did these five things:

(1) Created a "reorganization committee" of two miners and two operators from each of the fifteen mining districts represented.

(2) Instructed this committee to work out a method for future wage negotiations which may or may not be adopted.

(3) Instructed the committee to begin work in Chicago Nov. 14 and report to the whole conference Jan. 3, 1923.

(4) Did not set up a fact-finding commission but deferred to that of the government.

(5) Operators declined to comply with a request from Washington for a panel of twenty names suggested by the joint conference as possible members of the government fact-finding commission. The miners, however, suggested ten.

Before the conference ended the miners' scale committee announced that it would demand the platform laid down by the union convention of Feb. 14, that is, maintenance of the present scale of wages and insistence upon the adoption of a five-day week, a six-hour day, time and a half for overtime, double time for Sundays, and some other contract changes. This was regarded by the operators as not exactly bearing out the peaceful position taken by President Lewis when the conference opened.

On Oct. 7 martial law was lifted in Mingo County, West Virginia, after fifteen months. It had been established June 27, 1921, when war between union and non-union miners had grown so violent as to require federal troops. Late in October the union gave up the fight to get ousted union men back into the mines and moved them away.

"Outliers" Want Voice

When the "reorganization committee" selected at the Cleveland conference met in Chicago, Nov. 14, a battle was started at once by the outlying districts trying to win a voice in whatever method of wage negotiations the committee might recommend to the main conference. Both H. N. Taylor, of Kansas City, and C. H. Jenkins, of Fairmont, W. Va., proposed plans for making a national wage scale from which variations could be arranged by districts. Also national arbitration was proposed in various forms. The operators' half of the committee could not agree upon anything and the union would not entertain any arbitration suggestion. So the first session of the committee accomplished nothing and adjourned after four days of it, to reconvene Dec. 6.

When the operators' half of the committee assembled two days before the whole conference, it failed to agree upon the four-state plan which was expected to be adopted. Instead it worked out a proposal for district settlements, with a sliding scale of wages and arbitration by either a non-partisan board to be appointed by the President of the United States or a board made up of miners, operators and public representatives. The union would have none of this, so the committee adjourned a second time. It expected to meet for a final word an hour before the main joint conference assembled in Chicago Jan. 3, in the hope that something might happen in the meantime to make it possible for the committee to report something better than complete and absolute failure to agree upon any future method of negotiation.

On Dec. 13 the United Mine Workers essayed a stir by inviting the United States Coal Commission to probe conditions in Logan County, West Virginia.

Although there were many who would have liked to see the United States Coal Commission mediate in the coal industry's wage tangle, the commission made it plain late in December that it did not expect to overstep its fact-finding limitations. Thus the industry entered the year 1923 with no definite plan for putting its own house in order and for avoiding another strike.

Bituminous Coal Production, Mine Price and Index, by Weeks, 1921-22

Week Ended	1921 Production (Net Tons)	1921 Average Mine Price	1921 Coal Age Index	1922 Production (Net Tons)	1922 Average Mine Price	1922 Coal Age Index
Jan. 7	9,633,000			7,476,000	$2.29	189
Jan. 14	9,936,000	$3.26	270	8,302,000	2.29	190
Jan. 21	9,184,000			8,782,000	2.22	183
Jan. 28	8,570,000			9,620,000	2.21	182
Feb. 4	8,132,000			9,714,000	2.21	182
Feb. 11	7,859,000			10,309,000	2.22	183
Feb. 18	7,489,000	2.77	229	10,285,000	2.20	182
Feb. 25	7,432,000			10,402,000	2.18	180
Mar. 4	7,278,000			10,541,000	2.17	179
Mar. 11	6,900,000			11,102,000	2.16	178
Mar. 18	6,512,000	2.63	217	10,843,000	2.10	173
Mar. 25	6,457,000			11,448,000	2.05	170
April 1	5,822,000			10,469,000	2.06	171
April 8	6,120,000			3,835,000	2.19	181
April 15	6,528,000	2.62	217	3,656,000	2.23	184
April 22	6,815,000			3,575,000	2.49	206
April 29	6,984,000			4,175,000	2.67	221
May 6	7,391,000			4,164,000	2.78	230
May 13	8,009,000			4,433,000	3.16	261
May 20	7,989,000	2.68	222	4,481,000	3.67	303
May 27	8,166,000			4,889,000	3.25	269
June 3	6,835,000			4,616,000	3.08	255
June 10	8,010,000			5,136,000	3.44	284
June 17	7,551,000	2.52	208	5,013,000	3.31	274
June 24	7,704,000			5,363,000	3.44	284
July 1	7,658,000			5,226,000	3.51	290
July 8	6,165,000			3,678,000	3.64	301
July 15	7,401,000	2.40	198	4,123,000	3.89	321
July 22	7,380,000			3,692,000	5.57	460
July 29	7,319,000			3,952,000	6.73	556
Aug. 5	7,186,000			4,313,000	6.18	511
Aug. 12	7,771,000	2.42	200	4,606,000	6.66	550
Aug. 19	7,708,000			4,609,000	6.41	530
Aug. 26	7,753,000			6,736,000	5.29	437
Sept. 2	7,606,000			9,359,000	5.08	420
Sept. 9	7,083,000			8,791,000	5.17	427
Sept. 16	8,187,000	2.37	196	9,737,000	4.99	412
Sept. 23	8,527,000			9,747,000	5.06	418
Sept. 30	8,890,000			9,822,000	4.89	404
Oct. 7	9,134,000			9,736,000	4.60	380
Oct. 14	9,711,000	2.33	193	10,110,000	4.45	368
Oct. 21	11,049,000			10,378,000	4.26	352
Oct. 28	10,956,000			10,683,000	4.19	346
Nov. 4	9,327,000			10,666,000	4.16	344
Nov. 11	8,592,000	2.35	194	10,147,000	4.12	340
Nov. 18	8,871,000			11,215,000	4.15	343
Nov. 25	7,101,000			11,100,000	3.99	330
Dec. 2	7,105,000			10,387,000	3.95	326
Dec. 9	7,312,000			11,495,000	3.93	325
Dec. 16	7,063,000	2.26	187	10,666,000	4.07	336
Dec. 23	7,450,000			10,031,000	4.23	349
Dec. 30	.....			.....	4.47	369

Northwest Is Saved from Suffering When Uncle Sam Strikes Great Lakes Shipping Into Action

Coal Distribution System Demolishes Obstacles and Delivers Four-Fifths Normal Supply of Bituminous in Spite of "Impossibilities"—Region Gets Only One-Third Enough Anthracite by Lake Route, However

"THE heroic rescue of the Northwest" might well be the title of the story of coal shipping on the Great Lakes in 1922. The history of the season is a tale of obstacles choking off the stream of fuel for the states about the upper Lakes, of how that great region called to the government of the United States to give it coal, and of how the Hoover coal administration hacked a way through the obstacles and delivered the coal. In spite of a miners' strike which shut every mine through half the season of navigation, in spite of a railroad strike which hamstrung roads that should have dumped non-union Lake coal all summer, in spite of political and commercial opposition, and, finally, in spite of a Lake seamen's strike at the height of an autumn burst of vessel transportation, still the Lakes got 18,522,142 tons of soft coal, which is but 3,866,213 tons short of the record 1920 total of 22,408,355 tons of cargo coal. It is true the Northwest got less than a third of its normal Lake supply of anthracite—the total dumped at Lake Erie ports being only 1,070,680 tons, which is far short of the 3,810,315 tons of 1921—but it was supplied with its fuel necessities. The luxuries it may get by rail.

Year Opened with Big Stocks

Docks were piled high and 500,000 tons in winter cargoes lay alongside when 1922 opened. At first there was a shiver of uncertainty among dock men because the volume on hand was so mountainous. Cold weather of February boosted prices an average of 50c. a ton on bituminous, and demand became so keen that the apprehension was removed. The certainty of a strike April 1 made the carry-over of 3,500,000 tons of soft coal and 416,000 tons of anthracite at Duluth-Superior and other large stocks at Milwaukee seem only a comfortably large amount. The Northwest at once assumed an air of confidence because of these huge piles and at first refused to worry about the strike in its early weeks. This very confidence later led to the shipment of a good deal of coal from the Head-on-the-Lakes docks back along the other lake ports. From Duluth-Superior alone 229,000 tons was shipped out at various times.

The first Lake vessels ventured out of lower Lake ports April 11, opening the season. Dumpings were a little above 200,000 tons a week at the start. This was a great improvement over 1920 and 70 per cent of 1921. The first week of May saw an improvement to 250,000 tons, most of which went to lower ports, as the upper region was so full of coal. The week of May 22, the dumpings passed 300,000 tons for the first time, but the demand from Buffalo steel and coke plants was losing much of its insistence and the last week in May dumpings fell off to 250,000 tons again. By June 1 the total Lake movement up to that date was just under 2,000,000 tons, as compared with a little over 5,000,000 tons up to that date the year before. In other words, Lake shipping was only two-fifths of normal.

During June the Lake Superior Northwest awoke to the fact that its mountainous dock stocks were dwindling fast—shipments off the docks had started at the rate of 9,000 cars for April, which was a little above the average, and had accelerated more swiftly than the general public realized, for industrial consumers were buying—so Northwest inquiry for coal began to come in heavily. Only 247,000 tons was shipped through the "Soo" canals to Lake Superior ports during June and this dropped in July to 172,000,

BITUMINOUS CARGO COAL LOADED INTO VESSELS AT LAKE ERIE PORTS
(Net Tons)

	1920	1921	1922
Season to Apr. 30	301,572	1,242,772	802,641
May	1,195,732	3,559,895	1,303,281
June	2,069,546	4,658,309	1,474,634
July	2,686,888	3,554,686	755,437
August	4,408,788	2,932,101	825,225
September	3,941,867	2,200,473	4,396,284
October	4,486,434	2,722,633	4,600,427
November	3,060,724	1,474,114	3,856,161
December	256,804	67,397	508,052
Totals	22,408,355	22,412,380	18,522,142

which was enough to send a fright through the whole region, as the railroad freight rate decrease on July 1 had not produced the flow of coal expected. Instead, July 1 had brought an increase of 50c. a ton on most coals at the Head-of-the-Lakes, which offset any benefit from the 35c. freight cut.

June dumpings had been more or less encouraging. They had totaled 3,712,000 tons, which was within 200,000 tons of June, 1920, though 600,000 tons short of 1921—a year in which Lake shipping had started off at a pace much faster than usual. The month of June had shown an advance of 1,540,000 tons over May, and there was hope of increasing the flow of non-union coal to Lake Erie. But just then the rail strike cut in. Rail congestion at junctions all the way from the coal fields to the Lakes, and stronger industrial demand growing up in other parts of the country to divert coal from the Lakes combined to drop dumpings toward the very bottom.

Panicky feelings began to keep the Upper Lake territory awake nights. Demand everywhere in the country was strengthening, prices were getting out of hand and had crossed the Hoover deadline on their way up, and the Head-of-the-Lakes commercial supplies were less than 550,000 tons of bituminous and 250,000 tons of fine anthracite. Total receipts for the year to July 1 at Duluth-Superior had been but 288,000 tons, as compared with over 4,000,000 tons up to that date in 1921.

July dumpings at Lake Erie ports slid down. Approximately 140,000 tons "went over" during the week ended the 24th with disastrous effect upon the Northwest. Bunker fuel scarcity forced cutting of ship schedules. Vessel receipts on Lakes Superior and Michigan by Aug. 1 totaled a trifling 2,866,742 tons, which was only 11 per cent of the requirements of the ports around those lakes. In 1921 the same ports had received by Aug. 1 a total of 21,677,513 tons. Up to Aug. 1 in the years 1917 to 1919 the average had been 26,130,000 tons.

The Northwest began to get desperate. It lifted up its voice in loud and mournful wailing with a distinct note of hysteria predominating at times. The government's fuel distribution system was set up just then with Henry B. Spencer as Fuel Distributor. The Northwest rushed at him almost before he had had time to get to his office the first morning. Some effect of previous pleading was noticeable in Service Order 23, issued July 25 by the Interstate Commerce Commission setting forth coal priorities for shipment. Class 1 was "for such special purposes as may, from time to time, be designated by the Commission." The Northwest did its best to get into Class I but landed in Class 3: "(As to each coal-loading carrier which reaches mines in Pennsylvania, Ohio, West Virginia, Kentucky, Tennessee, and Alabama)—For bituminous coal consigned to any Lake Erie port for transshipment by water to ports upon Lake Superior."

Washington authorities made a Northwest survey and announced it was still possible to supply that region before the end of the lake season with coal barely sufficient to meet its minimum needs, provided shipments started by Sept. 1. Early in August it was arranged that cars for contract shipments to upper Lake ports should be supplied and that the shipments should be through the agency of the Ore & Coal Exchange at Cleveland. However, Lake dumpings the first week in August dropped to the "new low" of barely 92,747 tons. This was the absolute bottom. A steady improvement followed. The Fuel Distributor agreed

tentatively that henceforth at least 250,000 tons a week should be supplied for the upper Lakes alone if it could be obtained.

The settlement of the strike Aug. 15 at Cleveland, and the reopening of a large number of mines in Ohio the day after, had a noticeable effect on Lake dumpings as early as the week of Aug. 21, when the total climbed to 162,000 tons, of which 28,000 tons was bunker fuel. Lake shipping was behind about 10,000,000 tons by that date and peculiar distribution giving Lake Erie ports about eight times as much as 1920 and Lake Superior ports only 16.5 per cent of the total instead of the 36.5 per cent they got in 1920 and 51.4 per cent in 1921 made Lake Superior's plight striking. Lake Michigan ports up to that time had obtained 41.3 per cent of the season's dumpings, as compared with 23.5 per cent two years before. From July 1 to Aug. 1 stocks of bituminous coal at Duluth, Superior, Ashland and Washburn, on Lake Superior, had dropped from 1,498,000 tons to 661,000 tons and anthracite from 364,000 to 170,000 tons.

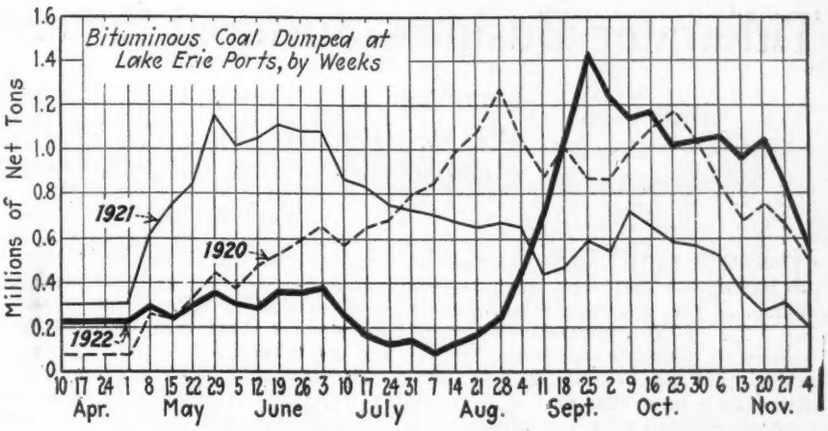
In view of all this the Fuel Distributor directed that on Monday, Wednesday and Saturday of the last week in August all coal loaded in the Kenova-Thacker, Logan and Kanawha fields on the C. & O. and in the Big Sandy, Elkhorn, Hazard and Harlan fields should go to the Lakes. The week's total dumpings went up to 258,898 tons, which was the first time the promised 250,000 tons had been delivered. The succeeding week the total reached 340,000 tons.

Priority Given to Lake Shipments

In order to improve the Lake situation further Lake shipments were put in priority Class 1. A pool was formed as during the war in the effort to get coal moved more quickly. Regardless of the complaint of poor quality which later arose in the Northwest over coal handled through this pool, shipments did increase, though Northwest dock reserves got down to 303,000 tons of bituminous and 92,000 tons of hard coal.

By Sept. 1 distribution of Lake cargo coal loaded at Lake Erie ports began to assume more normal proportions, even though totals were pitifully small. By that date loads for Lake Superior ports totaled 5,025,210 net tons, or 47.13 per cent of the Lake total to date. The total for those ports the year before to Sept. 1 was 9,486,736 tons. The grand total for the Lake ports to Sept. 1 was 10,662,526 tons, as compared with 15,840,744 tons the year before and 5,161,218 tons in 1920.

On Sept. 22 President Harding signed the Coal Distribution Act and soon thereafter Conrad E. Spens took office as Federal Fuel Distributor with Donald Conn, of Minneapolis, Minn.; C. P. White, of St. Paul, Minn., both Lake coal specialists, and H. M. Griggs, of the Ore & Coal Exchange, on his staff of assistants. Hope was expressed that 15,000,000 tons could be moved up the Lakes before the end of the season.



Lake Erie dumpings boomed upward during September with a high mark of 1,453,684 tons the week ended Sept. 24. This was a record week in the history of Lake shipping. At last Lake traffic was going full blast. But the fast gait could not be maintained. The very next week dumpings dropped to 1,241,086 tons.

Bituminous dumpings all through October were maintained above the million ton mark by main strength and government assistance, in spite of the Lake season's strike Oct. 1. Public utilities were asked not to stock any until the Lake season had closed. By Nov. 5 the bituminous movement for the season had been 15,577,786 tons. In the same period of 1921 the total was 21,972,375 tons. The last week in November saw dumpings slumping. In that week 812,117 tons was loaded at Lake Erie ports. An extension of the season was announced, mainly to permit more anthracite to get through. The "Soo" canals were kept open until Dec. 20, though there was little shipping of coal after Dec. 15. Duluth's season ended four days before that.

During the week of Dec. 11 dumpings totaled 288,869 tons, which was high for that time of year. This brought the season's total dumpings to a point a little in excess of 18,500,000 tons, which was approximately 4,000,000 tons behind the 1921 mark.

The anthracite mines began producing Sept. 12 and a little anthracite soon after appeared at Buffalo for shipment. This did not amount to much until October, however. In that month 267,744 tons went through the "Soo" canals for Lake Superior ports. In November the canals passed 281,746 tons and in December 97,000 tons, making the 1922 anthracite total for that lake, 670,447 tons. The total anthracite Lake dumpings during the week ended Oct. 23 were 153,553 tons, but they decreased during the next few weeks to less than 100,000 tons per week, only to spurt upward the middle of November to a high week of 151,000 tons and then down again. The December total to the close of navigation Dec. 15 at Buffalo was only 123,600 tons and the season total dumped there, 1,070,680 tons as compared with a 1921 total of 3,810,315 tons.

The Northwest, with only one-third of the usual anthracite receipts by Lake, was left to patch out its winter supply of anthracite by rail if it could. Milwaukee got only 314,253 tons of anthracite by vessel all season, which was 709,392 tons short of the 1,023,645 tons it got the year before. The Head-of-the-Lakes got 544,487 tons instead of 1,844,642 as in 1921. Practically all of this dock coal went to dealers as soon as it was received, so that the Lake supply sank out of sight quickly after the last boat had unloaded and it was estimated the last of it would be in householders' hands by Feb. 1, leaving no carry-over whatever for the spring of 1923.

Even though the superhuman efforts of the government and shippers toward the end of the navigation season brought the Northwest's total up within sight of the total of 1921, and it seemed that the upper Lake states certainly should feel no need for soft coal, yet it was estimated that only 700,000 tons were "free" on the Duluth-Superior docks, though the total on the docks was 2,765,924 tons compared with 5,663,477 tons as the end of the previous season. While Duluth docks contained 145,092 tons of hard coal when the last ship had unloaded, every ton of it was sold. In 1921 the carry-over there was 416,000 tons of anthracite and 3,500,000 tons of bituminous.

The Duluth total receipts for the season were 5,705,296 tons. The average for the past five years had been 10,104,828 tons there. Thus the Head-of-the-Lakes got half enough coal. Milwaukee got a better proportion. Its Lake total for 1922 was 2,330,507 tons of soft coal, which was only 243,867 tons short of 1921, but it got only 314,253 tons of anthracite, which was 709,392 tons short. The season total which passed through the "Soo" canals was 8,790,571 tons of soft and 670,447 tons of hard coal as compared with totals of 12,507,027 tons and 2,256,128 tons in 1921.

Following are revised figures giving the receipts of coal from all sources at Milwaukee during the year 1922:

Received by	Anthracite Tons	Bituminous Tons	Total Tons
Cargo vessel	360,070	2,331,407	2,691,477
Car ferry	108,620	272,664	381,284
Rail	879	428,805	429,684
Total, 1922	469,569	3,032,876	3,502,445
Total, 1921	1,168,625	3,623,086	4,791,711
Decrease	699,056	590,210	1,289,266

Tidewater Business Suffered Severe Shrinkage in 1922

Dumpings Into Vessels Drop 25 Per Cent from 1921 and Nearly 50 Per Cent from 1920—Exports Make Woeful Showing—Imports Increase Notably

BY J. S. BURROWS*

TWENTY-EIGHT million net tons of bituminous coal were dumped into vessels at the principal Atlantic ports in 1922. This comparatively small volume of tonnage represents but 75 per cent of the coal dumped in 1921 and slightly more than half of the peak tonnage of 1920, when our export business was so large. While the miners' and shopmen's strikes deserve first consideration as the cause of the loss of tonnage during the past year, actually had our export business and its attendant bunker requirements been as good in 1922 as in the previous year, there would not be the 25 per cent deficit in dumping which the figures reveal and in all probability 1922 would have been a better year than 1921, nothwithstanding the strikes.

In view of the curtailed production it might be imagined that there was not sufficient coal to export in 1922, which, however, is not the fact, for, bearing in mind that the bulk of our export business moves through Hampton Roads ports, which are served by non-union mines, there was coal available for export up to the last quarter of the year and a large surplus of tonnage during the first half.

Tidewater export business in the past year makes a miserable showing of 1,500,000 tons as compared with 9,600,000 tons in 1921 and over 21,000,000 tons in 1920. It is on account of this great disparity in the export division of the year's statistics that the entire subject is approached from the export angle rather than from the losses due to the great strikes.

Because of the strikes, however, the United States became a considerable importer of coals in the last half of the year, so that when a balance is struck between the quantity of coal that was exported overseas from the Atlantic seaboard and the quantity of coal that was imported from overseas at Atlantic ports an excess of several million tons of imported coal will be found. This was the second great factor in the Tidewater business of 1922. When, during the strike period, scarcity of coal enhanced prices to about $7.50 at Hampton Roads, British shippers were able to deliver cargoes of Welsh coal alongside New England wharves and in New York harbor at about the price on cars at Hampton Roads, thereby saving to buyers the cost of freighting from Hampton Roads to port of delivery. In most cases the British coal could be bought at from a dollar to a dollar and a quarter under the price of American coal.

No better illustration than this importation of British coal could be found to explain why our export business languished during the past year. Owing to the high cost of production and resulting high prices for American coal, plus our inability to maintain a competing merchant marine, the foreign buyer of coal has been going to England instead of the United States for his supplies. Nor has Great Britain lacked sufficient coal to meet this world-wide demand. Her coal industry, on which she is vitally dependent as a merchant nation, has made a most remarkable recovery despite the dire predictions of a year or so ago. While we shipped last year 1,500,000 tons of export coal, Great Britain exported nearly 65,000,000 tons, which is within 10 per cent of equaling her record pre-war year. This also shows that there has been a considerable market for coal abroad in which the United States has not been able to compete.

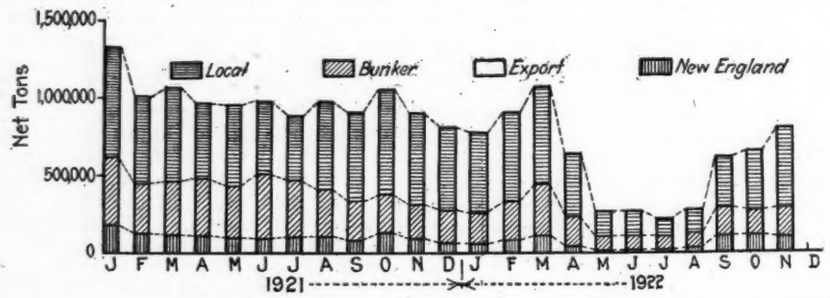
The loss of export business and the bringing of British coal to our shores are the outstanding features of the Tidewater business of 1922. The other divisions of Tidewater tonnage were affected largely by strike conditions.

Bunker business was nearly cut in half, less than 4,500,000 tons being supplied. This business increases or decreases with export trade but the great-

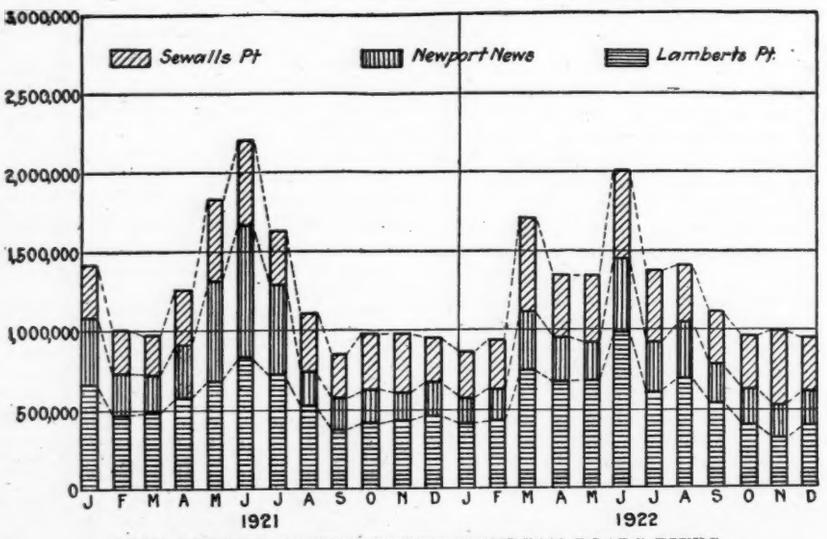
*Of Castner, Curran & Bullitt, Inc., New York City.

COAL DUMPED AT HAMPTON ROADS, BY MONTHS AND PIERS, 1922
(In Gross Tons)

Months	Lamberts Pt.	Newport News	Sewalls Point	Totals
January	423,196	163,049	281,454	867,699
February	443,933	214,669	284,012	942,614
March	753,429	369,645	591,863	1,714,937
April	689,345	268,095	387,748	1,345,188
May	694,660	234,835	416,201	1,345,696
June	995,468	472,353	537,994	2,005,815
July	610,758	324,652	443,147	1,378,557
August	704,141	344,209	354,102	1,402,452
September	556,529	230,284	320,708	1,107,521
October	414,985	208,282	340,002	963,269
November	330,646	204,057	459,533	994,236
December	408,376	203,414	330,542	942,332
Totals	7,025,466	3,237,544	4,747,306	15,010,316



DISTRIBUTION OF COAL DUMPED AT NEW YORK



COAL DUMPED AT THE THREE HAMPTON ROADS PIERS

est loss was due directly to the strike shortage of coal at New York, Philadelphia and Baltimore, and to the fact that steamers avoided coaling in this country as much as possible during the strike period. During the time of greatest scarcity steamers in New York were bunkered with coal shipped from Hampton Roads, more than a million tons being shipped to New York harbor from the Southern piers. This coal does not show in the bunker dumpings but partly accounts for the great increase in the division of "other tonnage" at Hampton Roads.

It will be noted at Hampton Roads that so-called "other tonnage" jumped from less than 750,000 tons in 1921 to about 3,500,000 tons in 1922. Hampton Roads became the emergency fuel station of the Atlantic coast cities during the strike and Pocahontas and New River coals were shipped in considerable quantities to Baltimore and Philadelphia as well as to New York.

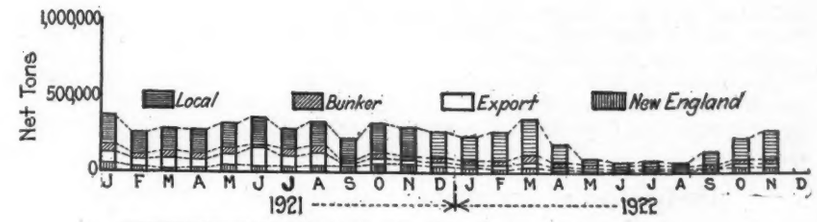
Total dumpings of coal for New England at all ports amounted to 10,750,000 tons, an increase of nearly 2,000,000 tons over 1921. This is surprising in view of the fact that the New England railroads bought during the late months of the year enough British coal to take care of their full requirements. Reserve stocks of coal, however, had nearly been wiped out during the strike and British coal may be regarded as replacement of reserve while the tonnage from Atlantic ports indicates about the average yearly shipments.

The individual ports fared variously throughout the year according to the extent of their dependence on union or non-union mines and the transportation conditions on the railroad serving them. Hampton Roads piers were least affected by the strike and were the main beneficiary of strike losses at other ports. Hampton Roads dumped 60 per cent of the total tidewater tonnage in 1922 as compared with 46 per cent in 1921 and 45 per cent in 1920, a record year.

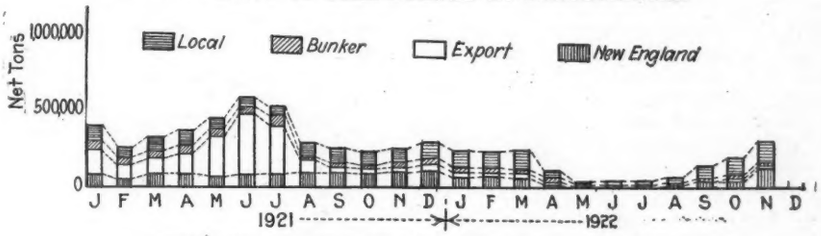
New York, the second largest port, dumped 25 per cent of the total tonnage in 1922 as compared with 32 per cent with 1921, a decrease of over 4,500,000 tons. Philadelphia dumped only 8 per cent of the total tonnage, as compared with 10 per cent in 1921, and Baltimore had 6 per cent, as compared with 11 per cent in 1921. The actual decreases in tons are shown in the accompanying summary.

As might be expected, prices of coal at Tidewater fluctuated widely throughout the year, influenced to a great extent by artificial causes during most of the strike period. Such influences which interfered with the law of supply and demand were the "Hoover fair prices," generally agreed to by the producers in most of the coal fields; propaganda on the part of the press as well as influential trade associations to prevent a panic of buyers, and the power delegated to but not used by the Interstate Commerce Commission to withhold cars from profiteering shippers.

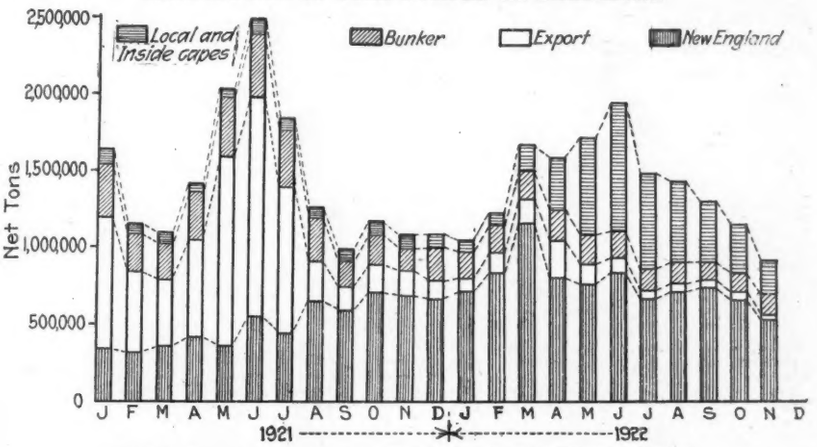
Taking New River and Pocahontas



DISTRIBUTION OF COAL DUMPED AT PHILADELPHIA



DISTRIBUTION OF COAL DUMPED AT BALTIMORE

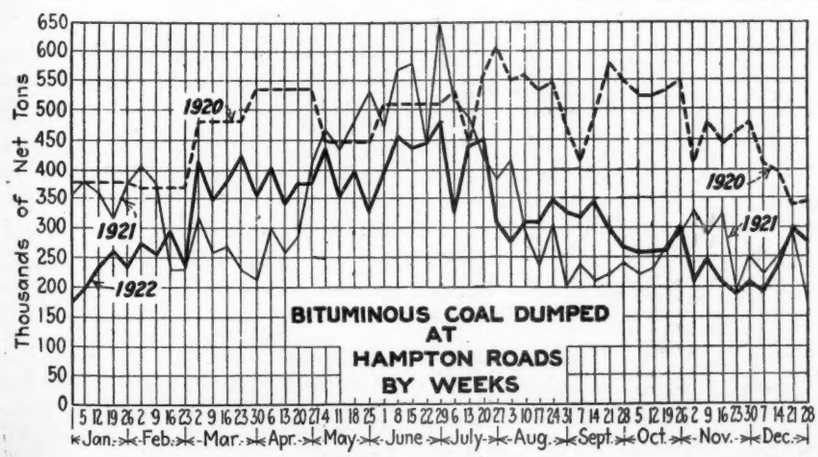


DISTRIBUTION OF COAL DUMPED AT HAMPTON ROADS

Shipments of Bituminous Coal to Tidewater, 1918-1922

(In Net Tons)

	1918		1919		1920		1921		1922 (11 mos.)	
By Ports:	Tons	Per Cent	Tons	Per Cent	Tons	Per Cent	Tons	Per Cent	Tons	Per Cent
New York	17,091,000	40	14,234,000	38	14,825,000	28	11,912,000	32	7,440,000	26
Philadelphia	3,121,000	7	4,411,000	12	6,191,000	11	3,641,000	10	2,158,000	8
Baltimore	3,641,000	8	3,467,000	9	7,831,000	14	4,136,000	11	1,917,000	7
Hampton Roads	18,977,000	44	14,630,000	40	24,026,000	45	17,242,000	46	16,626,000	58
Charleston	79,000	2	320,000	1	911,000	2	392,000	1	332,000	1
All Ports	42,909,000	100	37,062,000	100	53,784,000	100	37,323,000	100	28,473,000	100
Destination										
Coastwise to New England	15,248,000	36	8,386,000	23	10,457,000	19	8,859,000	23	10,892,000	38
Exports	3,741,000	9	8,292,000	22	21,778,000	41	9,633,000	28	1,613,000	6
Bunker	6,063,000	14	6,874,000	19	9,171,000	17	8,135,000	21	4,577,000	16
Inside Capes	4,476,000	10	3,438,000	9	3,410,000	6	3,251,000	8	3,332,000	12
Other tonnage	13,381,000	31	10,072,000	27	8,968,000	17	7,445,000	20	8,059,000	28
All Destinations	42,909,000	100	37,062,000	100	53,784,000	100	37,323,000	100	28,473,000	100



smokeless coal at Hampton Roads and Pool 9 coal at New York as typical examples of price fluctuation, prices were fairly constant at $4.50@$4.75 per gross ton at chutes for smokeless coal until April 1, with Pool 9 selling at $5.75@$6 per gross ton alongside in New York Harbor during the same period. The effect of the miners' strike was not felt until late in April, when southern smokeless sold at $5 and Pool 9 advanced to $6.50. Many saw a big advance in the New York market as union coal became scarcer and Pool 9 shot up to $8.50 while southern smokeless was beginning to feel the increased demand and went to over $7.

Prices slipped back somewhat in June but went up again in July, at the end of which month southern smokeless sold as high as $9.50 and Pool 9 reached $12. The highest prices of the year were reached in August, during the time of greatest stringency, when southern smokeless was sold at $10@$11 and Pool 9 at $12@$13. The settlement of the miners' strike naturally brought about a recession in prices during the early fall months, southern smokeless getting back to $7.25@$7.50 by the middle of October with Pool 9 at $8@$8.25.

With some further recessions of 25c. or more and some quick advances during the holidays the year 1922 closed around $9 with a strong market in prospect for the opening of year 1923.

Destination of Bituminous Coal Shipped to Tidewater In 1922, by Months

(In Net Tons)

	New England	Export	Bunker	Inside Capes	Other Tonnage	Monthly Total
NEW YORK						
January	58,000	1,000	219,000	.....	522,000	798,000
February	89,000	.....	251,000	.....	574,000	914,000
March	116,254	1,323	341,161	.....	617,452	1,076,190
April	42,000	.....	195,000	.....	406,000	643,000
May	16,000	.....	113,000	.....	135,000	264,000
June	10,626	.....	108,739	.....	150,229	269,594
July	16,000	.....	86,000	.....	113,000	215,000
August	40,000	1,000	101,000	.....	122,000	264,000
September	125,000	.....	173,000	.....	317,000	615,000
October	120,000	.....	169,000	.....	379,000	668,000
November	108,000	.....	180,000	.....	516,000	804,000
December	84,000	.....	224,000	.....	602,000	910,000
Total	824,880	3,323	2,160,900	.....	4,453,681	2,440,784
PHILADELPHIA						
January	42,000	14,000	32,000	156,000	2,000	246,000
February	21,000	27,000	31,000	180,000	1,000	260,000
March	47,962	26,416	50,073	225,268	3,499	353,218
April	7,000	13,000	28,000	127,000	1,000	176,000
May	7,000	10,000	15,000	52,000	.....	84,000
June	2,604	6,409	12,462	31,236	.....	52,711
July	9,000	1,000	11,000	32,000	.....	53,000
August	4,000	1,000	6,000	39,000	.....	50,000
September	28,000	.....	18,000	97,000	.....	143,000
October	45,000	22,000	21,000	143,000	.....	231,000
November	33,000	21,000	25,000	183,000	.....	262,000
December	37,000	13,000	22,000	174,000	.....	246,000
Total	283,566	154,825	271,535	1,439,504	7,499	215,929
BALTIMORE						
January	63,000	25,000	27,000	99,000	3,000	217,000
February	67,000	12,000	31,000	94,000	3,000	207,000
March	59,073	34,124	26,195	98,897	17,089	235,378
April	16,000	16,000	22,000	46,000	2,000	102,000
May	.....	.....	12,000	31,000	.....	43,000
June	.....	.....	7,778	25,965	.....	33,743
July	.....	.....	3,000	21,000	.....	24,000
August	5,000	.....	6,000	42,000	.....	53,000
September	48,000	.....	8,000	79,000	.....	135,000
October	45,000	8,000	15,000	111,000	7,000	186,000
November	136,000	10,000	17,000	135,000	1,000	299,000
December	166,000	9,000	24,000	175,000	5,000	379,000
Total	605,073	114,124	198,973	957,862	38,039	1,914,121
HAMPTON ROADS						
January	716,000	87,000	179,000	15,000	52,000	1,049,000
February	842,000	138,000	176,000	18,000	55,000	1,227,000
March	1,160,787	177,697	190,695	23,612	120,132	1,672,923
April	807,000	246,000	203,000	68,000	266,000	1,590,000
May	768,000	140,000	197,000	125,000	493,000	1,723,000
June	837,326	94,485	166,371	233,415	613,866	1,945,463
July	663,000	58,000	147,000	113,000	503,000	1,484,000
August	711,000	57,000	140,000	86,000	445,000	1,439,000
September	736,000	56,000	119,000	83,000	309,000	1,303,000
October	654,000	57,000	119,000	90,000	228,000	1,148,000
November	530,000	29,000	136,000	39,000	183,000	917,000
December	664,000	53,000	123,000	62,000	247,000	1,149,000
Total	9,088,113	1,193,182	1,896,066	934,027	3,514,998	16,626,396
CHARLESTON						
January	.....	14,000	1,000	.....	.....	15,000
February	.....	14,000	3,000	.....	.....	17,000
March	.....	15,659	3,780	.....	.....	19,439
April	.....	27,000	5,000	.....	.....	32,000
May	16,000	7,000	7,000	.....	.....	30,000
June	25,824	3,144	6,785	.....	.....	35,753
July	22,000	21,000	8,000	.....	10,000	61,000
August	1,000	3,000	4,000	.....	6,000	14,000
September	.....	8,000	2,000	.....	18,000	28,000
October	4,000	8,000	1,000	.....	4,000	17,000
November	10,000	13,000	5,000	.....	8,000	36,000
December	10,000	13,000	6,000	.....	.....	29,000
Total	88,824	146,803	52,565	.....	46,000	334,192
ALL PORTS (Net Tons)						
January	879,000	141,000	456,000	270,000	579,000	2,325,000
February	1,017,000	191,000	492,000	292,000	633,000	2,625,000
March	1,384,076	255,219	611,904	347,777	758,172	3,357,148
April	873,000	302,000	453,000	240,000	675,000	2,543,000
May	807,000	157,000	344,000	208,000	628,000	2,144,000
June	876,380	104,038	302,135	290,616	764,095	2,337,264
July	710,000	80,000	255,000	166,000	625,000	1,837,000
August	761,000	62,000	257,000	167,000	573,000	1,820,000
September	937,000	64,000	320,000	259,000	644,000	2,224,000
October	868,000	95,000	325,000	324,000	618,000	2,250,000
November	817,000	73,000	303,000	357,000	708,000	2,318,000
December	961,000	88,000	399,000	411,000	854,000	2,713,000
Total	10,892,456	1,612,257	4,577,039	3,332,393	8,059,256	28,473,401

Engineering Profession Entering New Era, Says Dean Cooley

The engineering profession is on the eve of great developments, Dean Mortimer E. Cooley of the University of Michigan, declared in his address to the American Engineering Council of the Federated American Engineering Societies at the annual meeting of the Council held at the Cosmos Club in Washington, Jan. 11-12. Dean Cooley, who was unanimously re-elected president of the Council for 1923, struck the keynote of the gathering in saying: "We are, I feel, entering upon a new era. The engineer, not so much in the technical as in the social sense, is about to take that part in the world which rightfully is his. I am speaking not of civil engineering, mechanical engineering, chemical engineering, electrical engineering or any other branch but of engineering as a whole.

Reviewing the year's work, Dean Cooley said that substantial results had been achieved, and that the Federation was progressing gradually and surely toward the fulfillment of its mission. His trip through eighteen states last spring, he said, inspired the conviction that the Federation was a necessary instrument of organized engineering and a source of opportunity for service both within and without the profession that exceeded the hopes even of its founders. The waste report and the report of the two-shift day in continuous industry he characterized as two outstanding accomplishments of world importance. A third undertaking of similar magnitude was likely to be set in motion in the near future, Dean Cooley announced.

Dean Cooley enumerated many activities in which the Federation might utilize the services of the engineer for the national good. Transportation he mentioned as a field for possible engineering effort through the Federation, whose work in reforestation, delayed by illness in the familiy of the committee chairman, would soon be constructively resumed.

Where Coal Originates and Where It Goes

Every Coal Field in United States Shown in Maps—Railroads Reaching These Fields and Market Areas Served Are Given in Tabulations

BY WAYNE P. ELLIS

THE accompanying outline maps of coal producing fields, with the index of names and railroads serving each, were originally prepared by the Car Service Division of the American Railway Association. A few changes have been made in the outlines and railroads and there has been added for each producing field the principal market territory now being served by it.

No maps are shown for the territory served by coal moving coastwise from Atlantic seaboard ports nor via Lake from Eastern producing fields through lower Lake Erie ports. The Atlantic coastwise movement is principally to New England, while the Great Lakes movement ultimately reaches destinations for the most part located in Michigan, Wisconsin, Minnesota and Ontario, Canada, and even as far west as the Dakotas.

The market territories from each district of origin for the most part can be clearly outlined, as the same general territory has been served for a number of years. Freight rates and mine costs have limited the sales territory in normal years through competition between fields producing similar quality coals suitable for general steam use. Due, however, to the rapid development of the byproducts coke industry and other consumption needs requiring special grades of coal there has resulted in recent years, an increased demand for and increased transportation haul of special high-grade coals produced only in certain districts, which are, generally speaking, the most remote from the market centers. Mention is made of this fact only to explain, in part, the reason for the widespread distribution of coal produced in southern West Virginia and eastern Kentucky.

WEST VIRGINIA

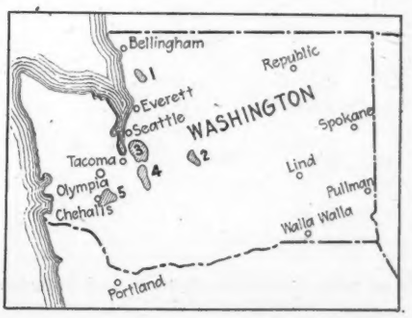
Map No.	Producing District	Originating Roads	Market Territory
1 and 1a	Fairmont and Cumberland-Piedmont	B. & O., Mong., Mong. & Wheeling and W. Va. Mid.; West. Va. Northern, Morgantown and Kingwood	Eastern Ohio, including Lakes, Northern West Virginia, Maryland, Eastern Pennsylvania, Southeastern New York, New Jersey, Delaware and New England including tidewater.
2	Phillippi	B. & O.	Eastern Ohio including Lakes, Northern West Virginia, Maryland, Eastern Pennsylvania, Southeastern New York, New Jersey, Delaware and New England including tidewater.
3	Upper Potomac	West. Md.	Maryland, Dist. of Columbia, Southeastern Pennsylvania, New York, New Jersey, Delaware, Southeastern New York, and New England including tidewater.
4	Junior	West. Md. and B. & O.	Eastern Ohio including Lakes, Northern West Virginia, Maryland, Eastern Pennsylvania, Southeastern New York, New Jersey, Delaware and New England including tidewater.
5	Coal & Coke	B. C. & G., and B. & O. (Coal & Coke)	Eastern Ohio, including Lakes, Northern West Virginia, Maryland, Eastern Pennsylvania, Southeastern New York, New Jersey, Delaware and New England including tidewater.
6	Kanawha	C. & O.	Eastbound to West Virginia, North and South Carolina including tidewater.
		C. & O., K. & M., Camp Cox, Kellys Cr.	Westbound—Central Freight Assn. Territory including Lakes.
7	New River and Winding Gulf	C. & O., Virginian, K. G. J. & E., and N. & W.	Virginia, Dist. of Columbia, North and South Carolina including tidewater.
8	Pocahontas	N. & W., and Virginian	Virginia, Dist. of Columbia, North and South Carolina including tidewater, and Central Freight Assn. Territory.
9	Tug River	N. & W.	Virginia, Dist. of Columbia, North and South Carolina including tidewater, and Central Freight Assn. Territory.
10	Thacker	N. & W.	Virginia, Dist. of Columbia, North and South Carolina including tidewater, and Central Freight Assn. Territory.
11	Kenova	N. & W.	Central Freight Assn. Territory.
12	Panhandle	B. & O., Penna., and P. & W. V.	West Virginia, Panhandle, Northeastern Ohio, including Lakes.
13	Logan	C. & O.	Eastbound to West Virginia, North and South Carolina including tidewater.
			Westbound to Central Freight Assn. Territory including Lakes.
			Westbound to Central Freight Assn. territory, including Lakes.

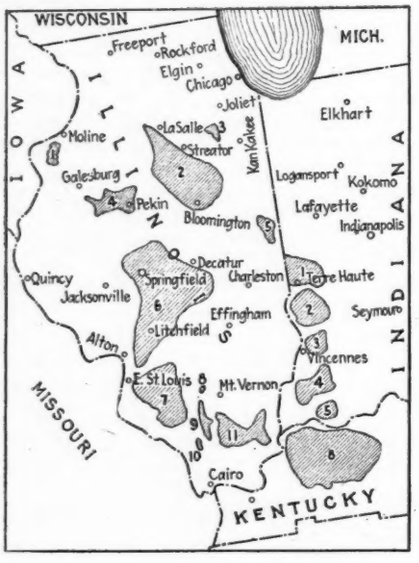
MICHIGAN

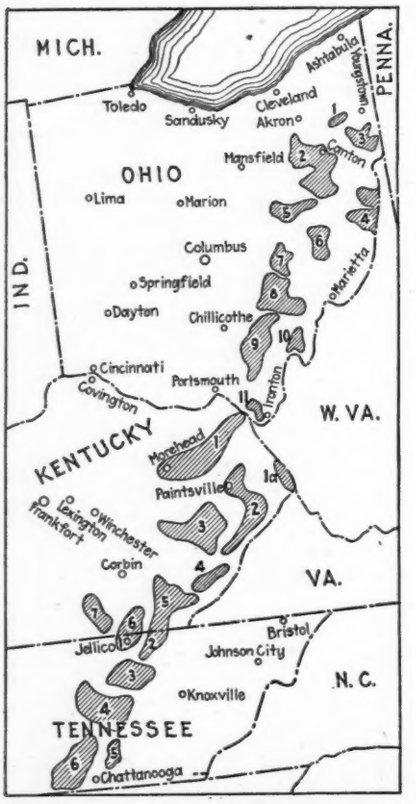
Map No.	Producing District	Originating Roads	Market Territory
1	Saginaw	N. Y. C., Mich. Cent., P. M. and G. T.	Coal shipped from mines in Michigan does not reach points outside of the state.

WASHINGTON

Map No.	Producing Districts	Originating Roads	Market Territory
1	Northern Puget Sound	G. N.	Washington and Canada.
2	Roslyn	N. P.	Washington, Idaho and Oregon.
3	King County	N. P., C. M. & St. P., Pacific Coast and Puget Sound Electric.	Washington and Oregon.
4	Southern Puget Sound	N. P.	Washington and Oregon.
5	Lewis County	N. P., G. N., C. M. & St. P., and Union Pacific (O. W. R. & N.)	Washington, Oregon and California.







(Kentucky, Tennessee, Indiana and Illinois continued on next page.)

PENNSYLVANIA

Map No.	Producing District	Originating Roads	Market Territory
1	Beech Creek Snowshoe	N. Y. C. Pa.	New York and New England. Pennsylvania, New York and New England.
2	Butler and Mercer	L. E. F. & C., P. L. & W., B. R. & P., B. & L. E., Penna., B. & O., and West. Alleg.	Northwestern Pennsylvania, Northeastern Ohio, Western New York, including Lake cargo.
3	Central Pennsylvania (Clearfield and Central-West Penna.)	B. R. & P., N. Y. C., Penna., Pitts. & Sus., Buff. & Sus., Alt. Nor., P. S. & N., Erie, Cam. & Ind., West. Alleg., and Pitts. & Shaw.	Pennsylvania east of Latrobe, New York, New Jersey, Delaware, Dist. of Columbia Eastern Maryland, New England and Eastern Canada via water and rail, including Tidewater.
4	Windber	B. & O., J. & S. C., Penna.	Pennsylvania, Johnstown and East, Southeastern New York, New Jersey, Delaware, Eastern Maryland, and New England including Tidewater ports Baltimore and north.
5	Broad Top	East Broad Top, H. & B. T. M.	Pennsylvania, Johnstown and East, Southeastern New York, New Jersey, Delaware, Eastern Maryland, and New England, including Tidewater ports, Baltimore and North.
6 and 6a	Somerset and Indian Creek	B. & O., West Md., C. H. & B., and United Indian Creek Valley	Eastern Maryland and Pennsylvania, Southeastern New York, New Jersey, Delaware, Dist. of Columbia, and New England, including Tidewater.
7	Connellsville	B. & O., Mong., P. & L. E., Wash. Run., Penna., and West. Md.	Western Pennsylvania and Northeastern Ohio, including lakes and Western New York.
8	Ligonier	Lig. Val.	Pennsylvania, Johnstown and East, Southeastern New York, New Jersey, Delaware, Eastern Maryland, and New England, including Tidewater ports, Baltimore and North.
9	Latrobe	Lig. Val. and Penna.	Pennsylvania, Johnstown and East, Southeastern New York, New Jersey, Delaware, Eastern Maryland, and New England, including Tidewater ports, Baltimore and North.
10	Greensburg and Westmoreland	Penna.	Pennsylvania, Johnstown and East, Southeastern New York, New Jersey, Delaware, Eastern Maryland, and New England, including Tidewater ports, Baltimore and North, Eastbound, also Western Pennsylvania and Northeastern Ohio.
11	Pittsburgh	B. & O., B. & L. E., B. R. & P., P. C. & Y., Montour, Penna., P. & W. V., P. & L. E., and Union.	Northeastern Ohio, Western Pennsylvania, Western New York, including Lakes.
12	Penna. Anthracite	D. L. & W., D. & H., Erie, L. & N. E., Lehigh Val., N. Y. O. & W., P. & R., Cent. of N. J., and Penna.	New York, Pennsylvania, New England, New Jersey, Delaware, Maryland, Dist. of Columbia, Northern Virginia and West Virginia, Northeastern Ohio, Eastern Canada and via Lakes.
13	Tioga	Erie, S. & N. Y., N. Y. C., and Penna.	Eastern New York and New England.

OHIO

Map No.	Producing District	Originating Road	Market Territory
1	Palmyra	N. Y. C.	Northeastern Ohio, Northwestern Pennsylvania, and Western New York, including Lakes.
2	Massilon and Goshen	B. & O., Penna., and W. & L. E.	Northeastern Ohio, Northwestern Pennsylvania, and Western New York, including Lakes.
3	Lisbon	P. L. & W., Penna., Y. & O. R., and Erie.	Northeastern Ohio, Northwestern Pennsylvania, and Western NewYork,, including Lakes.
4	No. 8	B. & O., Penna., P. & W. V., W. & L. E., and N. Y. C.	Northeastern Ohio, Northwestern Pennsylvania, Western New York, including Lakes, Canada and Southeastern Mich.
5	Coshocton	Penna. and W. & L. E.	Northern Ohio, Southeastern Michigan, including Lakes.
6	Cambridge	B. & O. and Penna.	Northeastern Ohio, Northwestern Pennsylvania, Western New York, including Lakes, Canada, and Southeastern Mich.
7	Crooksville	Penna., Z. & W., W. & L. E., and B. & O.	Northwestern Ohio, Lower Peninsula of Michigan and Northeastern Indiana, including Lakes.
8	Hocking	Hocking Val., B. & O., T. & O. C., K. & M., and Z. & W.	Northwestern Ohio, Lower Peninsula of Michigan and Northeastern Indiana, including Lakes.
9	Jackson	B. & O., D. T. & I., Hocking Val.	Northwestern Ohio, Lower Peninsula o- Michigan and Northeastern Indiana, inf cluding Lakes.
10	Pomeroy	Hocking Val., B. & O., and K. & M.	Northwestern Ohio, Lower Peninsula of Michigan, and Northeastern Indiana, including Lakes.
11	Ironton	N. & W., and D. T. & I.	Northwestern Ohio, Lower Peninsula of Michigan, and Northeastern Indiana, including Lakes.

ILLINOIS

Map No.	Producing Districts	Originating Roads	Market Territory
1	Rock Island	C. R. I. & P., C. M. & St. P., C. B. & Q., and R. I. Sou.	Eastern Iowa and Northern Illinois.
2	Northern Illinois	C. B. & Q., I. C., C. & A., C. C. C. & St. L., C. R. I. & P., C. & N. W., C. M. & St. P., C. P. & St. L., A. T. & S. F., T. P. & W., Wabash and N. Y. C. (L. E. & W.)	Northern Illinois, Northwestern Indiana, Eastern Iowa and Southern Wisconsin.
3	Wilmington	E. J. & E., C. & A., A. T. & S. F., and C. C. C. & St. L.	Northern Illinois, Northwestern Indiana, and Southeastern Wisconsin.

ILLINOIS, continued

4	Peoria and Fulton	C. B. & Q., M. & St. L., P. & P. U., T. P. & W., I. C., P. R. T., A. T. & S. F., C. C. C. & St. L., Penna., C. P. & St. L., C. & A., C. & N. W., and C. R. I. & P.	Northern Illinois, Northwestern Indiana, Northern Iowa, Southern Wisconsin, and Southern Minnesota.
5	Danville	C. & E. I., C. C. C. & St. L., Ill. Tract. and Wabash	Northern Illinois, Northern Indiana, Southwestern Michigan, and Southern Wisconsin.
6	Central Illinois	B. & O., C. & A., C. B. & Q., C. & E. I., C. P. & St. L., C. I. & W., Wabash, C. C. C. & St. L., C. & N. W., I. C., Ill. Tract., C. & I. M., T. St. L. & W., Penna., L. & M., and Spr. Terminal.	Illinois, Missouri, Iowa, Southeastern South Dakota, Southern Minnesota, Southern Wisconsin and Eastern Nebraska.
7	Belleville	E. St. L. & S., St. L. & B. E., St. L. & O. F., B. & O., Penna., St. L. T. & E., M. & O., L. & N., Southern, I. C., W. C. & W. and Ill. Sou.	Southern Illinois and Eastern Missouri.
8	Centralia	B. & O., C. B. & Q., I. C., C. & E. I., Southern and Ill. Sou.	Illinois and Eastern Missouri.
9	Du Quoin	I. C., W. C. & W., and Mo. Pac.	Northbound—Illinois, Missouri, Iowa, Eastern Nebraska, Southeastern, South Dakota, Southern Minnesota, Southern Wisconsin, Northwestern Indiana, and Southwestern Michigan.
10	Murphysboro	I. C., Mo. Pac., and M. & O.	
11	Southern Illinois	C. C. C. & St. L., L. & N., I. C., C. B. & Q., M. O. Pac., C. & E. I., B. & O., and M. & E.	Southbound—Illinois, Western Kentucky, Tennessee, Mississippi, Louisiana, Eastern Texas, Arkansas and Missouri.

INDIANA

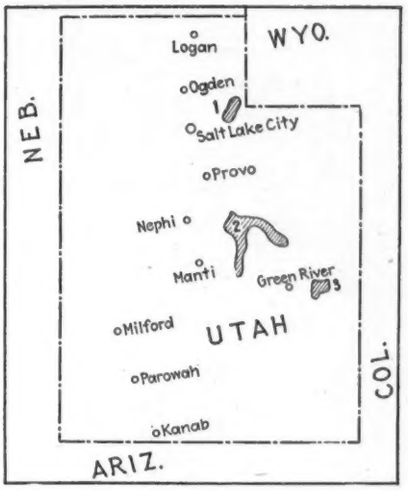
Map No.	Producing District	Originating Road	Market Territory
1	Brazil and Clinton	Penna., C. & E. I., I. C., C. C. C. & St. L., C. I. & L., Cent. of Ind., C. M. & St. P., C. I. & W., and T. St. L. & W.	Indiana, Southern Michigan, Northern Illinois and Southern Wisconsin.
2	Sullivan and Linton	C. M. & St. P., Penna., C. I. & L., I. C., and C. & E. I.	Indiana, Southern Michigan, Northern Illinois and Southern Wisconsin.
3	Knox County	B. & O., Penna. and C. C. C. & St. L.	Indiana, Southern Michigan, Northern Illinois, and Southern Wisconsin.
4	Princeton and Ayrshire	Southern, C. C. C. & St. L., and C. & E. I.	Indiana, Northwestern Kentucky, Illinois, and Southwestern Wisconsin.
5	Booneville	Southern	Indiana and Illinois.
6	Evansville and Newburg	I. C., C. & E. I., E. S. & N., E. & O. V., C. C. C. & St. L., and E. & I.	Indiana, Northwestern Kentucky and Illinois.

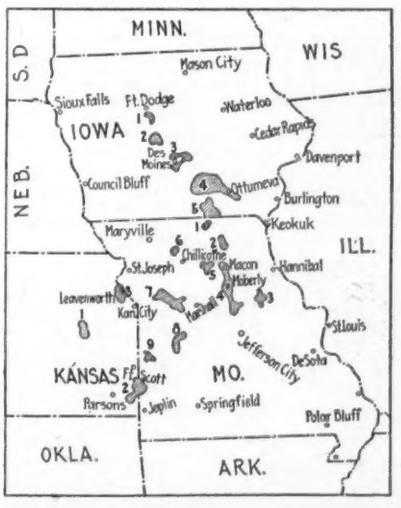
KENTUCKY

Map No.	Producing District	Originating Road	Market Territory
1	Grayson	East Ky., M. & N. F., and A. C. & I.	Northern Kentucky and Centra Freight Association territory, including Lakes.
1a	Thacker	N. & W., W. & P. C., and B. S. & C.	Virginia, D. C., N. Car., S. Car., including tidewater and Central Freight Association Territory.
2	Elkhorn and Paintsville	C. C. & O., C. & O., L. & N., S. V. & E., Long Fork, Miller's Creek and Big Sandy & Ky. River.	Northern Kentucky and Central Freight Assn. territory, including Lakes.
3	Hazard	L. & N., and Ohio & Ky.	Northern Kentucky and Central Freight Assn. territory, including Lakes.
4	Harlan	L. & N.	Kentucky and Central Freight Assn. territory, including Lakes.
5	Middlesboro	L. & N., Southern, Cumberland, and Cumberland & Man.	Northbound—Kentucky and Central Freight Assn. territory, including Lakes. Southbound—Eastern Tennessee, Georgia, North and South Carolina, and Florida, including tidewater.
6	Jellico	L. & N. and Southern	Northbound—Kentucky and Central Freight Assn. territory, including Lakes. Southbound—Eastern Tennessee, Georgia, North and South Carolina, and Florida, including tidewater.
7	Cincinnati Southern	K. & T., and Southern	Northbound—Kentucky and Central Freight Assn. territory, including Lakes.
8	Western Kentucky	I. C., L. & N., L. H. & St. L., and Ky. Mid.	Northbound—Western Kentucky, Indiana, Illinois, Southeastern Wisconsin, and Eastern Missouri. Southbound—Western Kentucky and Tennessee, Mississippi, Louisiana, Eastern Arkansas, and Texas.

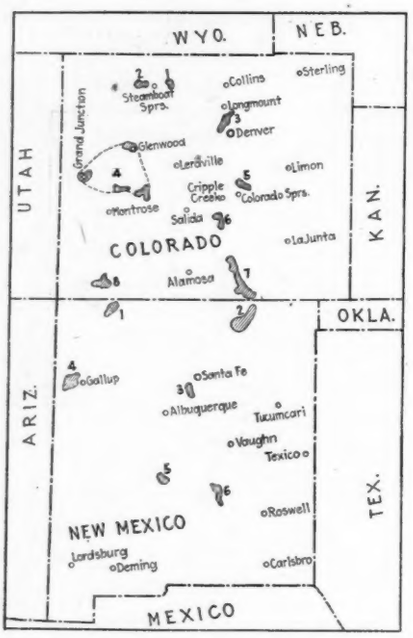
TENNESSEE

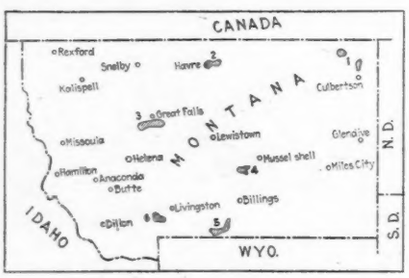
Map No.	Producing District	Originating Road	Market Territory
1	Jellico	L. & N., and Southern	Northbound—Kentucky and Central Freight Assn. territory including Lakes. Southbound—Eastern Tennessee, Georgia, North and South Carolina and Florida, including tidewater.
2	Middlesboro	Southern	Northbound—Kentucky and Central Freight Assn., territory including Lakes. Southbound—Eastern Tennessee, Georgia, North & South Carolina, and Florida, including tidewater.
3	La Follette and Windrock	Southern, L. & N., On. & Wn., Mor. & Fen., and Tenn.	Northbound—Kentucky and Central Freight Assn. territory including Lakes. Southbound—Eastern Tennessee, Georgia, North and South Carolina, and Florida, including tidewater.
4	Rockwood	Tenn. Cent. & Southern	Tennessee, Georgia, North and South Carolina and Florida.
5	Soddy	Southern	Tennessee, Georgia, North and South Carolina and Florida.
6	Tracy & Sparta	N. C. & St. L.	Tennessee, Georgia, North and South Carolina and Florida.

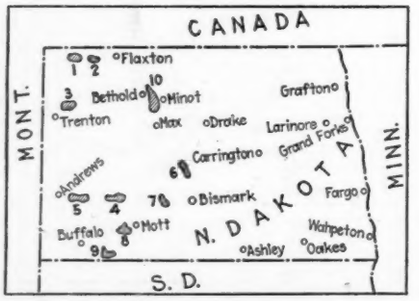




(Data for Utah, Alabama, Iowa, Kansas and Missouri continued on following pages.)







(Data for above districts concluded on following pages.)

UTAH

Map No.	Producing District	Originating Roads	Market Territory
1	Summit County	Union Pacific	Utah and Wyoming.
2	Carbon and Emery Counties	D. & R. G. W. and Utah	Utah, Nevada and California.
3	Grand County	D. & R. G. W.	Utah, Nevada and California.

ALABAMA AND GEORGIA

Map No.	Producing District	Originating Roads	Market Territory
1	Jackson County	N. C. & St. L. and Southern	Northern Alabama and Southern Tennessee.
2	Blount Mt.	L. & N., and N. C. & St. L.	Alabama, Tennessee and Georgia
3	Coosa	S. A. L., Cent. of Ga., and Southern.	Alabama, Georgia, Tennessee, South Carolina and Florida.
4	Warrior River and Cahaba	L. & N., A. B. & A., Ala. Cent., Bir. Sou., Southern, M. & O., Cent. of Ga., I. C., St. L. S. F., Mary Lee, Th. & S., Wood. & Bloc., and Woodward Iron.	Alabama, Georgia, Tennessee, South Carolina, Florida, Mississippi, Eastern Texas, and Eastern Arkansas.
5	Georgia	Cent. of Ga.	Georgia and Tennessee.

IOWA

Map No.	Producing District	Originating Roads	Market Territory
1	Coalville	C. G. W., M. & St. L., and Ft. D. D. M. & S.	Northern Iowa, Southeastern South Dakota, Eastern Nebraska and Southern Minnesota.
2	Boone	C. M. & St. P., Ft. D. D. M. & S., C. & N. W., and M. & St. L.	Northern Iowa, Southeastern South Dakota, Eastern Nebraska, and Southern Minnesota.
3	Des Moines	C. R. I. & P., C. & N. W., C. G. W., C. M. & St. P., and Interurban.	Iowa, Southeastern South Dakota, Eastern Nebraska, and Southern Minnesota.
4	Albia	C. R. I. & P., C. B. & Q., Wabasn, C. & N. W., M. & St. L., C. M. & St. P., and I. S. U.	Iowa, Northern Missouri, Eastern Nebraska and Southern Minnesota.
5	Appanoose	C. R. I. & P., C. M. & St. P., C. B. & Q., M. & St. L., and I. S. U.	Southern Iowa, Northern Missouri, and Eastern Nebraska.

KANSAS

Map No.	Producing District	Originating Roads	Market Territory
1	Osage	Mo. Pac. and A. T. & S. F.	Western Missouri and Kansas.
2	Pittsburg	St. L. S. F., Mo. Pac., A. T. & S. F., M. K. & T., K. C. S. and J. & P.	Western Missouri, southwestern Iowa, Kansas, southeastern Nebraska and Oklahoma.
3	Leavenworth	U. P., A. T. & S. F., Mo. Pac.	Western Missouri and Kansas.

MISSOURI

Map No.	Producing District	Originating Roads	Market Territory
1	Mendota	C. B. & Q.	Northern Missouri and Southern Iowa.
2	Novinger	Q. O. & K. C., Wabash and C. B. & Q.	Northern Missouri and Southern Iowa.
3	Vandalia	C. & A., Wabash and St. L. & H.	Northern Missouri.
4	Brevier	Wabash, M. K. & T., C. B. & Q., C. & A., and Brevi. & South.	Missouri and Southern Iowa.
5	Marceline	A. T. & S. F., and C. B. & Q.	Missouri and Southern Iowa.
6	Grundy County	Q. O. & K. C.	Missouri and Southern Iowa.
7	Lexington	Mo. Pac., Wabash, A. T. & S. F., and C. & A.	Missouri, Eastern Kansas, and Eastern Nebraska.
8	Lewis and Jordan	St. L. S. F., K. C. C. & S., A. T. & S. F., C. R. I. & P., and M. K. & T.	Missouri, Eastern Kansas and Eastern Nebraska.
9	Bates County	Mo. Pac., and St. L. S. F.	Missouri, Eastern Kansas, and Eastern Nebraska.
10	Pittsburg	St. L. S. F., Mo. Pac., A. T. & S. F., M. K. & T., and K. C. S.	Missouri, Eastern Kansas and Eastern Nebraska.

MARYLAND

Map No.	Producing District	Originating Roads	Market Territory
1	Cumberland and Piedmont	B. & O., Cumb. & Penna., and West. Md.	Maryland, District of Columbia, Northern West Virginia and Virginia, Southeastern Pennsylvania, New Jersey, Delaware, Southeastern New York and New England, including tidewater.
2	Upper Potomac	West. Md.	Maryland, District of Columbia, Northern West Virginia and Virginia, Southeastern Pennsylvania, New Jersey, Delaware, Southeastern New York and New England, including Tidewater.

VIRGINIA

Map No.	Producing District	Originating Roads	Market Territory
1	Clinch Valley	N. & W.	North and South Carolina, Virginia including Tidewater.
2	Southestern Virginia	N. & W., Southern, C. C. & O., L. & N., Interstate and Norton & Northern.	North and South Carolina, Eastern Tennessee, Georgia and Florida.
3	Pulaski County	N. & W.	Virginia, North and South Carolina.

MONTANA

Map No.	Producing District	Originating Roads	Market Territory
1	Sheridan County	G. N. and Soo Line	Northern Montana and Northwestern North Dakota.
2	Blaine County	G. N.	Northern Montana.
3	Cascade County	G. N.	Montana, North Dakota, Washington and Idaho.
4	Roundup	C. M. & St. P.	Montana, South Dakota, Idaho and Washington.
5	Bridger and Red Lodge	M. W. & S. and N. P.	Montana and Wyoming.
6	Trail Creek	N. P.	Montana.

COLORADO

Map No.	Producing Districts	Originating Roads	Market Territory
1	North Park	C. W. & E.	Colorado
2	Yampa	D. & S. L.	Colorado
3	Boulder Co.	Colo. & Sou., C. B. & Q., D. & I. M., and Union Pacific.	Colorado, Wyoming and Nebraska
4	Crested Butte and Grand River	D. & R. G. W., Colo. Mid., Unitah and Book Cliff	Colorado
5	El Paso Co.	A. T. & S. F., D. & R. G. W. and C. R. I. & P.	Colorado.
6	Canon City	A. T. & S. F. and D. & R. G. W.	Colorado.
7	Trinidad	D. & R. G. W., Colo. & Sou., Colo. & Wyo., and A. T. & S. F.	Colorado, Nebraska, Kansas, New Mexico, Texas and Oklahoma.
8	Durango and Gallup	D. & R. G. W.	Colorado, New Mexico, and Kansas.

NEW MEXICO

Map No.	Producing District	Originating Roads	Market Territory
1	San Juan	D. & R. G. W.	New Mexico, and Colorado.
2	Raton	S. F. R. & E., E. P. & S. W. and A. T. & S. F.	New Mexico, Kansas, Texas, Colorado and Oklahoma.
3	Cerilles	A. T. & S. F., N. M. Cent., and New Mexico Midland.	New Mexico.
4	Zuni (Gallup)	A. T. & S. F.	New Mexico, Arizona and California.
5	Carthage	New Mexico Midland	New Mexico.
6	Capitan	E. P. & S. W.	New Mexico and Texas.

OKLAHOMA

Map No.	Producing Districts	Originating Roads	Market Territory
1	Tulsa County	A. T. & S. F., M. K. & T., and St. L. S. F.	Oklahoma, Southeastern Kansas, and Southestwen Missouri.
2	Henryetta-Dewar	A. T. & S. F., M. O. & G., St. L. S. F., and Ft. S. & W.	Mainly astern Texas and Arkansas.
3	Poteau	Mid. Val., C. R. I. & P., X. C. S. and Ft. S. & W.	
4	McAlester-Wilburton	C. R. I. & P., M. K. & T., Ft. S. & W., Mid. Val. and K. C. S.	
5	Lehigh	A. T. & S. F., M. K. & T., and C. R. I. & P.	

TEXAS

Map No.	Producing Districts	Originating Roads	Market Territory
1	North Central Field	T. & P., C. R. I. & P., G. T. & W., and W. F. & S.	Practically all coal mined in Texas is consumed within the state.
2	Titus County	St. L.-S. W.	
3	Camp Hopkins and Wood Counties	M. K. & T. and Texas Short Line.	
4	Nacogdoches County	S. P. in T. & L.	
5	Houston County	I. & G. N.	
6	Leon and Madison Counties	S. P. in T. & L. and T. & B. V.	
7	Milan and Robertson Counties.	I. & G. N.	
8	Washington and Fayette Counties.	S. P. in T. & L.	
9	Bastrup County	M. K. & T.	
10	Medina County	I. & G. N.	
11	Eagle Pass	S. P. in T. & L.	
12	Laredo	R. G. & E. P.	

ARKANSAS

Map No.	Producing Districts	Originating Roads	Market Territory
1	Sebastian County	Mid. Val., St. L. S. F., C. R. I. & P., Mo. Pac. & Ark. Cent. and Ark. Wn.	Eastern Kansas, Arkansas, Western Missouri-Oklahoma and Texas.
2	Arkansas Anthracite	Mo. Pac., Ark. Cent., and Ft. S. S. & E.	Eastern Kansas, Arkansas, Western Missouri. Texas and Oklahoma.

NORTH DAKOTA

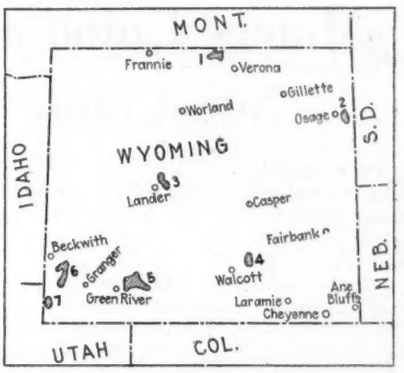
Map No.	Producing Districts	Originating Roads	Market Territory
1	Divide County	G. N.	No coal is shipped outside of the state except small tonnage to Central Minnesota and Eastern South Dakota.
2	Burke County	G. N. and Soo Line	
3	Williams County	G. N. and Soo Line	
4	Billings County	N. P.	
5	Stark County	N. P.	
6	Burleigh County	N. P. and Soo Line	
7	Morton County	N. P.	
8	Hellinger County	C. M. & St. P.	
9	Adams County	C. M. & St. P.	
10	Ward County	Soo Line	

SOUTH DAKOTA

Map No.	Producing District	Originating Roads	Market Territory
1	Isobel	C. M. & St. P.	All South Dakota coal is consumed in the state.

WYOMING

Map No.	Producing District	Originating Roads	Market Territory
1	Sheridan County	C. B. & Q.	Montana, Eastern Wyoming, South Dakota, Nebraska and Western Iowa.
2	Cambria (Weston Co.)	C. B. & Q.	Eastern Wyoming, Nebraska and Western Iowa.
3	Hudson (Fremont Co.)	C. & N. W.	Eastern Wyoming, Nebraska, South Dakota, and Western Iowa.
4	Hanna (Carbon Co.)	Union Pacific	Wyoming, Nebraska, and Western Iowa.
5	Rock Springs	Union Pacific	Wyoming, Colorado, Nebraska, Idaho, Washington and Oregon.
6	Kemmerer	Union Pacific (O. S. L.)	Wyoming, Utah, Idaho, Oregon and Washington.
7	Evanston (Unitah Co.)	Union Pacific	Wyoming, Utah, Oregon and Washington.



British Columbia Output Gains

BY ROBERT DUNN

The coal output of British Columbia for 1922 should be approximately 150,000 tons better than it was in the previous year. Up to the end of October, according to monthly returns submitted by the collieries, it had totaled 2,120,637 tons. Official returns for the whole of 1921 show a production of 2,628,672 tons. Thus, if the output for November and December average 250,000 tons, the aggregate will be, as stated, a little better than it was in 1921. It should be remembered, however, that usually there is a shrinkage when the annual compilation is compared with that arrived at every month. For this reason it is not safe to say that the official statistics, when issued, will show that the past year has improved, to a very material extent, over that immediately preceding.

In the Crow's Nest Pass district, eastern British Columbia, the situation has become better during the past few months. The pick-up of output since the cessation of the strike has been remarkable. Notwithstanding the effects of the United States tariff of 53c. a ton the Crow's Nest Pass Coal Co. is reported to be doing a good trade with the Great Northern Ry., to which coal is supplied at a figure approximating $5 a ton. The coal retails in Fernie and other centers adjacent at about $8.25. The collieries are making a strong effort to extend their market throughout the prairies, particularly in Manitoba, and the prospects of success are good, providing satisfactory transportation can be obtained, as there is no doubt that the quality of the fuel from this region will make it popular with the consumer.

There has been considerable development of the coal fields of central British Columbia—the Nicola-Princeton zone. The Coalmont Coal Co. is producing at the rate of from 700 to 800 tons a day. The coal is high grade and 500 tons a day is reported to be going to the Great Northern Ry. A considerable local market is being found for the product of the Middlesboro collieries. The Kettle Valley Ry. uses some of this for fuel requirements and the coal retails in Princeton at about $7.50. Exports from this field to the coast, while growing, have not yet reached large proportions.

Miners' Union at Bottom of Nation's Coal Troubles, Non-Union Operators Tell Coal Commission

In a statement to the United States Coal Commission on Jan. 12 the non-union operators of southern West Virginia present their case. Extracts follow:

"These operators of West Virginia have no proper place before your board. Our own labor difficulties have never deprived the people of their coal; rather we have always supplied the nation when there were labor disturbances elsewhere. Our mines are not overdeveloped; instead we must constantly expand them to meet the demand for our coal. Our business is not seasonal; on the contrary we have the central west throughout the year and the Lake trade to serve in summer, the industries of the East and New England to support and a foreign commerce to sustain, all of which keeps us constantly engaged. Our prices, as a whole, have created no scandal; rather we have always joined hands with the government in every effort to control the whole market in the interest of the public. And, on only rare occasions—and then due to outside influences—have our transportation difficulties risen to the dignity of a public menace. On these accounts we do not belong in the throng which crowds your anteroom to explain their misdeeds.

"And yet, we men of West Virginia are here. You have drawn us in. The public will not be satisfied unless we appear. We have come, therefore—and gladly—to say this one thing and to prove it:

Troubles Come from Outside

"West Virginia's difficulties have all been imported. They were carried into our borders. And they originate in the fact that others having fallen into a quagmire are and have been trying to drag us in with them."

Then follows a recital of the history of the coal-mining industry of southern West Virginia, how the country was developed—towns, roads and the many things that make life comfortable were brought in by the operators and their men. The interdependence of the proprietors and their labor is pointed out, how in this primitive section of the world every facility must be provided, and how the operators and men made progress together. The picture is one of internal accord, until outside influences were brought to bear. The growth of the industry in these fields is stated and the part of southern West Virginia in producing the coal needed during the war is set forth.

How these operators met the wild demands of 1920, the deflation of 1921 and how they co-operated with the government in holding prices down in 1922 are stressed. Mr. Hoover's commendation for their part in keeping the market in bounds last summer is recited with pride. The statement continues:

"We have now shown our relations and their fruits. We have produced coal in season and out of season. We have received modest prices except when a world upheaval created conditions beyond our control. Our record is that as soon as an abnormal situation disappeared, the normal tendency asserted itself and prices declined. We now come to a new set of conditions which were imposed upon us from without—and for reasons which we will recite.

"From the beginning of the coal industry in West Virginia, it has been the policy of the operators to conduct the business on a non-union basis. This policy on the part of the operators is shared by a great number, if not all, of their employees, many of whom frankly state they will not work under the union; they will abandon mining rather than do so, and will seek other occupations. Notwithstanding the legal right of the operator and the miner to agree upon terms of employment satisfactory to themselves, we have, for a generation, been interfered with almost without cessation in every way the United Mine Workers of America could devise to accomplish the conquest of our state. . . .

"The initial conspiracy had its origin in a contract entered into at a joint conference between the miners and operators of the Central Competitive Field in Chicago, Jan. 17-28, 1898. From that contract we quote the eighth clause, which is as follows:

" 'That the United Mine Workers Organization, a party to this contract, do hereby further agree to afford all possible protection to the trade and the other parties hereto against any unfair competition resulting from the failure to maintain scale rates.'

"(See Hearings before the Committee on Education and Labor, United States Senate, S-RES. 80, Page 394.)

"The true meaning of the clause just quoted, as understood by the parties thereto, appears in the minutes of the various joint conferences held after that time, from which we give only three excerpts out of many which might be given.

"At the conference held in Pittsburgh, Jan. 18, 1899, John Mitchell, National President of the United Mine Workers of America, said:

" 'I want to say to the operators that an effort has been made in the past year to curtail the West Virginia coal by preventing its sale on the market.'

"(See Hearings before the Committee on Education and Labor, United States Senate, S-RES, 80, page 395.) . . ."

Another excerpt is given from the records of the joint interstate conference tending to show that the United Mine Workers were attempting to unionize West Virginia in order to eliminate competition with the organized fields on the north. It is pointed out that the national strikes of 1919 and 1922 caused cessation of some 60 per cent of the coal output. The story of high prices is hitched to these strikes, the statement continuing:

"It may fairly be said that except as to the unusual situations heretofore referred to, the high prices of coal during recent years have been the direct result of the actions of the United Mine Workers of America in calling nation-wide strikes, such strikes being made possible by its absolute control of mine labor in such a large part of the country."

The story of the efforts of the United Mine Workers to organize these fields are recited. Paint Creek in 1912, Glen White in 1917, Willis Branch and finally the armed march on Logan are cited in detail. The men who participated in these raids, their convictions in the courts and the lengths of their jail sentences are given.

Finally it is shown that the mines of the country have ample capacity to produce all the coal the country requires and it is concluded that the cause of shortages must be sought in some other direction. The statement concludes:

"Our mines, today, are running at less than 50 per cent capacity. This is due solely to a lack of transportation. We cannot supply our market if the railroads cannot carry more than half of what we can produce.

"As we have shown, every period of shortage—except that caused by the war demand—has been preceded by a strike of the union miners.

"This leads us to suggest: Stripped of all non-essentials, the two questions before you are:

"(1) How can the periodic interruptions of coal production be stopped?

"(2) How can the wild fluctuations of coal prices be brought to an end?

"Answering these questions categorically, the interruptions of production can be stopped if you can arrange to prevent, forever, the union from calling a nation-wide strike. . . .

"The price fluctuations will disappear if, and when, the great strikes cease and when the railways can carry our coal to market.

"Your commission represents the whole people of the United States. If you feel that the consumers should continue to pay present—or higher—prices for coal, the miners' union should be encouraged by new concessions. If you feel that the people are paying prices which are too high, an effective curb should be put upon its activities—by removing exceptions to the anti-conspiracy laws, and by protecting all American citizens in their right to work unmolested under such conditions as they elect."

French Coal Industry Experienced Poor Market in 1922

Had Keen Competition from British Product Till American Orders Relieved Pressure—Longer Workday Sought as Safeguard —Production Shows Marked Advance Over Preceding Year

BY M. VICTOR TRUANT
Paris, France

A POOR market was the main characteristic of the French coal industry during the first six months of 1922. Under the pressure of British coals, which, owing to the low wages paid to miners in Great Britain, managed to compete with French coals into the very heart of the Nord and Pas-de-Calais coal field, the output of the French collieries was sold with the utmost difficulty and stocks accumulated at the pitheads. It is reckoned that in April or May last, in the Nord and Pas-de-Calais coal field alone, pithead stocks aggregated about 2,000,000 tons.[a]

After July the situation radically altered. Orders from North America diverted from France the pressure of British coals and at the same time a revival in French metallurgical and textile trades increased the demand for industrial coals. French domestic coals can now be obtained only with protracted delays in delivery, and industrials are in strong demand. Pithead stocks have been gradually melting away, and we are told that in the Nord and Pas-de-Calais they do not now exceed the comparatively modest figure of 300,000 to 400,000 tons.

MORE BRITISH COAL COMING AGAIN

Recently British coal exports to France again have been on the increase, but the general coal demand is now much better than in the first months of the present year and besides the rise of sterling is limiting to the coasting areas the inroads of British coals. It should also be borne in mind that, owing to the wilful destruction by the Germans of all the occupied French collieries, the coal output of the Nord and Pas-de-Calais field is still 1,100,000 tons per month behind its normal level.

Official prices quoted by the collieries of the Nord and Pas-de-Calais have varied little since Jan. 1, 1922. Some time before, owing to slackness of trade and to a keener competition of British coals, they had been reduced as follows per ton: 10-15 f. for raw industrial coals; 20-31 f. for washed coals; 39-49 f. for briquets.

On April 16, 1922, some slight reductions were made: 3 f. on industrial run-of-mine; 5 f. on washed pea and on slack; 4 f. on fat coals run-of-mine; 5-6 f. on rough slack; 8-10 f. on washed smalls; 4 f. on screened semi-fat coals. Besides, a rebate for summer delivery, varying from 3 to 8 f. per ton, was granted on certain classes of sized coals.

On July 1, selling prices were again lowered as follows: Flaming coals, 1 f.-5 f. on rough slack, pea and washed coals; fat coals, 2 f.-5 f. on run-of-mine, washed pea and washed smalls; semi-fat coals, 1 f. on run-of-mine, 3-8 f. on washed pea; 3 f. on washed smalls; lean coals, 1 f.-2 f. on slack.

Since then the official schedule of prices of the Nord and Pas-de-Calais, an abstract of which we reproduce below, has not been modified (all prices are f.o.b. mine):

	Whole Range of Prices for the Four Selling Zones	Prices for the Selling Zone Exposed to the Competition of Foreign Coals
FLAMING COALS		
Slack	48– 60 f	48– 56 f
Screened	87–111 f	87–107 f
Run-of-mine	66– 75 f	66– 71 f
Peas	76– 80 f	76 f
Washed smalls	68– 72 f	68 f
Washed pea	88– 95 f	88– 91 f
FAT COALS		
Slack	54– 62 f	54– 58 f
Run-of-mine	66– 75 f	66– 71 f
Smithy pea	105–113 f	105 f
Washed pea	92–100 f	92 f
Washed smalls	74– 77 f	74 f
Washed coking smalls	72 f	72 f
Screened	89–115 f	89–113 f
Washed nuts, 30/50 mm	105–107 f	105 f
Washed nuts, 20/30 mm	102–104 f	102 f
SEMI-FAT COALS		
Slack	53– 61 f	53– 57 f
Run-of-mine	66– 75 f	66– 71 f
Washed pea	86– 95 f	86– 88 f
Washed smalls	70– 77 f	70 f
QUARTER-FAT COALS		
Slack	48– 59 f	48– 55 f
Run-of-mine	67– 73 f	65– 69 f
Washed pea	80– 92 f., 50	80– 84 f., 50
Washed smalls	62– 77 f	62– 69 f
LEAN COALS		
Slack	40– 58 f	40– 54 f
Run-of-mine	63– 71 f	63– 67 f
Washed pea	70– 90 f	70– 81 f, 50
Washed smalls	75– 74 f	57– 64 f

Reductions up to 1 f. 50c. per ton are officially granted for large tonnages.

We must mention that the mines of the Nord and Pas-de-Calais are not strictly conforming to their official schedule and while in the first months of this year they often agreed to unofficial reductions in order to obtain contracts, they are now availing themseives of the improvement of the market for quoting prices materially higher than the schedule.

In January the daily wages of the miners of the Nord and Pas-de-Calais were reduced as follows: 3 f. 25c. for adult workers (2 f. as from Jan. 16 and 1 f. 25c. as from April 16); 2 f. 25c. for underground boys (under 16 years old); 2 f. for surface boys. Allocations for high cost of living were maintained.

Before the end of the first half year, coal owners of the Nord and Pas-de-Calais, realizing that they could not meet the competition of British coals unless they substantially lowered their costs, decided, since it was not possible to inforce a further decrease of wages in the present conditions of living in the devastated areas, to ask of Parliament a modification of the Eight Hour in Mines Act, in order to increase the 6 hours 15 minutes per shift of effective work underground resulting from the application of that act. It does not seem likely, however, that this modification will be passed by Parliament, and, as the French coal market had improved meanwhile, the operators renounced their ultimatum of a wage reduction failing their obtaining, on Oct. 15 at the latest, the hoped-for extension of the day's work.

In the middle of the year some slight abatements on export rail transportation rates were granted to permit certain collieries to ship abroad a part of their stocks. Reductions on inland traffic likewise have since been granted to coal mines of the Nord and Pas-de-Calais, Lorraine and the Saar district for distances over 150 km.; but these reductions are deemed to be insufficient to enable French collieries to withstand British competition if it again becomes as aggressive as it was at the beginning of this year.

OUTPUT AHEAD OF 1921

During the first ten months of 1922, France produced 26,295,000 tons of coal (including anthracite and lignite), as against 20,343,000 tons during the first ten months of 1921. In 1913 the French coal output was 40,922,000 tons, or 3,410,000 tons per month, to be compared with 2,629,000 tons in 1922. It must however, be observed that the latter figures include the production from Alsace-Lorraine (367,000 tons in October, 1922), which is of course, not included in the pre-war output. Altogether, therefore, present production is about 1,100,000 tons per month behind the rate of 1913.

In 1913, mines of the Nord and Pas-de-Calais produced 27,520,000 tons of coal, a monthly average of 2,293,000 tons, while their monthly output during the first ten months of 1922 was only 1,263,000 tons. The production of the devastated mines is steadily increasing; from 587,000 tons in April last, it rose to 694,000 tons in September and to 728,000 tons in October.

Coke ovens annexed to collieries produced 807,000 tons of coke during the first ten months of 1922, as against 617,000 tons during the corresponding period of 1921. Pre-war French coke production was 2,655,000 tons (for the

[a] All tons in this review are metric tons of 2,204 lb.

whole year 1913), of which 2,445,000 tons was in the Nord and Pas-de-Calais. The difference still to be made up is therefore 140,000 tons per month. The production of coke of the Nord and Pas-de-Calais during the first ten months of 1922 was 324,000 tons. There also was coke production from ovens belonging to metallurgical works, which during the first six months of 1922 aggregated 636,000 tons.

During the first ten months of 1922 France produced 2,211,000 tons of briquets, instead of 1,962,000 tons during the same period in 1921. In 1913 the monthly production was 306,100 tons. The Nord and Pas-de-Calais alone in 1913 produced a monthly average of 150,000 tons of briquets, and for each of the first ten months of this year an average of 112,800 tons.

In spite of a lesser industrial activity, the destruction of the collieries in the Nord and Pas-de-Calais makes it a necessity that France import more coal than before the war. During the first ten months of 1922 French coal imports aggregated 18,192,000 tons, or 1,820,000 tons per month, while average monthly imports in 1913 were 1,558,000 tons. British coals imported up to Oct. 31, 1922, were 9,622,000 tons of which 999,000 tons was received in October.

France imported during the first ten months of 1921 14,583,000 tons, of which, owing to the British miners' strike, only 3,726,000 tons was from Great Britain, and 919,000 tons was from the United States.

Coke Imports Larger

French coke imports during the first ten months of 1922 were 4,162,000 tons; during the same period of 1921, 2,523,000 tons. Germany's part in these imports in 1922 was 3,522,000 tons and in 1921, 2,423,000 tons. Belgium supplied 409,000 tons in 1922 and almost none in 1921. In 1913 France imported 3,071,000 tons of coke.

France imported during the first ten months of 1922 1,125,000 tons of briquets, as against 810,000 tons during the first ten months of 1921, of which 398,000 tons were lignite briquets from Germany in 1922 and 322,000 tons in 1921, and from Belgium 607,000 tons and 284,000 tons, respectively.

EXPORTS OF FUEL FROM FRANCE
(In Metric Tons)

	Jan. to Oct. 1922	Jan. to Oct. 1921	Monthly Average in 1913
Coal	1,552,000	1,532,000	109,000
Coke	383,000	367,000	19,250
Briquets	80,000	80,000	16,000

It may seem strange that France, which has never been a coal exporting country, but which is, on the contrary, in need of large fuel supplies from abroad is now an exporter of sizeable quantities. This is due primarily to the fact that all the western part of France is more easily accessible to imported coals than to the products of the distant French coal fields, and this explains why coal mines of the Nord and Pas-de-Calais are fighting so strenuously for a reduction in transportation rates. On the other hand, the very fact that these exports are of exactly the same importance this year as last year shows that they are a consequence of long-established connections. Most of the 383,000 tons of coke exported by France from Jan. 1 to Oct. 31 was from the Loire coal field, where the metallurgical industry is not reviving to the same extent as in the East, to Switzerland and Italy.

During the first ten months of 1922 Germany delivered to the various Entente countries 15,092,000 tons of coal, coke calculated as coal, and briquets. To France alone, shipments aggregated 3,860,000 tons of coal, 3,680,000 tons, of coke equivalent to 4,906,000 tons of coal, and 392,000 tons of lignite briquets, a total of 9,158,000 tons.

Indemnity of 7,000,000 Tons

According to paragraph 2, Annex V, Part 8 of the Versailles Treaty, Germany was to deliver to France in 1922: (1) A fixed annual indemnity of 7,000,000 tons of coal; (2) The difference between the pre-war and the present output of the Nord and Pas-de-Calais coal mines, which on the basis of the monthly average output during the first ten months of this year would have been 1,030,000 tons per month. If the provisions of the Versailles Treaty has been strictly carried out, Germany ought therefore to have delivered to France 1,613,000 tons of coal per month, whereas she delivered only 915,800 tons during each of the first ten months of 1922.

It seems probable that 1923 will continue the transition to better times from the acute depression of 1921. France consumed in 1913 about 63,000,000 tons of coal, production plus imports less exports, including the equivalents in coal of coke and briquets. To this must be added the normal consumption of Alsace-Lorraine, which is about 9,000,000 tons. This indicates that the normal annual fuel requirements of France are 72,000,000 tons.

The following figures show the coal consumption of France in 1921 and in 1922 in metric tons, without, however taking any account of stocks:

	1921	1922 (Two Months Estimated
Coal	37,523,000	48,335,000
Coke (coal equivalent) *a*	4,650,000	6,113,000
Briquets (coal equivalent)	3,235,000	3,050,000
Totals	45,408,000	57,498,000

(*a*) Calculated as 4 tons of coal for 3 tons of coke and briquets as 92 per cent coal.

French mines contributed 24,847,000 tons or 55 per cent in 1921 and 31,550,000 tons (two months estimated) or 55 per cent in 1922.

Results of Reconstruction

When the reconstruction of devastated collieries in the Nord and Pas-de-Calais is completed French coal production will be 45,015,000 tons, almost exactly the French coal output in 1913, 40,922,000 tons plus the coal production of Alsace-Lorraine, 4,400,000 tons.

It does not seem probable that the devastated mines of Northern France will be able to recuperate their full capacity of production before about four years, and they also will have to overcome a serious labor shortage.

SOURCES OF FRENCH COAL IMPORTS

	First 10 Months of 1922 Metric Tons
1–Great Britain:	
Coal	9,621,000
Coke	42,000
Briquets	116,000
Total (coke and briquets converted into coal)	9,784,000
2–Germany:	
Coal	3,111,000
Coke	3,522,000
Briquets	398,000
Total (coke and briquets converted into coal)	8,175,000
3–Belgium	
Coal	2,010,000
Coke	409,000
Briquets	607,000
Total (coke and briquets converted into coal)	3,114,000
4–Saar Territory	
Coal	2,912,000
5–Netherlands (partly in transit from Germany)	
Coal	510,000
6–Various countries	
Coal	.....
Coke (including probably some coke in transit from Germany)	189,000
Briquets	4,100
Total (coke and briquets converted into coal)	282,800
Total	24,777,800

From the above figures it is evident that when French coal output and consumption are normal, France will still be dependent upon other countries for her coal supply to the extent of 27,000,000 tons per annum (as against about 26,000,000 tons this year and 22,000,000 tons in 1913).

If 1923 is marked by a real industrial revival and French coal requirements climb toward their normal level of 72,000,000 tons, France, with the reconstruction of her devastated collieries still far from being complete will experience serious difficulties in obtaining the coal. A general revival of trade would, of course, be felt also in Great Britain, and it is not therefore to be expected that exports could be increased beyond the present shipments to France of 11,000,000 tons. Belgium, which already is having difficulty in meeting the demands upon her production, especially for domestic coals, would certainly not be able to send more than her present 3,700,000 tons.

American Coals May Be Needed

From the Saar territory some relief might be expected, but it is unlikely that it would be sufficient and American coals alone might fill the breach. But will political and economic circumstances permit such a genuine revival to take place as soon as this year? This seems to us rather doubtful. The French metallurgical trade, though, would have a higher output but for lack of coke.

No reduction of wages is to be expected soon in French collieries and, as the men's leaders have pledged themselves to oppose any modification of the Eight Hour in Mines Act, it seems most probable that Parliament will not pass the proposed amendment. French collieries' costs therefore probably will remain at their present high level.

After Poor Start, British Coal Trade Had Good Year

Improvement Laid to Better Co-operation Between Operators and Miners and American Demand for British Coal—Management Better, Costs Lower and Output Higher—Outlook is Bright

BY C. H. S. TUPHOLME

ON the whole, the past year was a good one for the British coal industry. The year 1922 opened badly, it is true, but matters gradually improved, until December went out with production consistently above the 5,000,000-ton per week mark, prices steady, exports up and pre-war buyers returning.

This improved outlook finds its basis in two factors. The first is the better co-operation between operators and miners, arising from an appreciation of elementary economic facts, and the realization that the welfare of the men depends upon that of the industry and *vice versa*. The second factor is, or was, the demand from America for British coal.

Better co-operation has resulted in improved management, lower costs and better output. The second factor has demonstrated to potential coal buyers that Great Britain is willing to sell coal on a business basis, can supply in practically any quantity and is not anxious to benefit from the misfortunes of others. The strike in the United States exerted a strong influence in bringing back customers who had held off; here I might instance South America and Germany. Both of these countries, with others, have, since the American demand on British production, enormously increased their orders.

Production is indeed very good. In 1921 the weekly output only once reached the 5,000,000-ton level, and that was at the end of December. During the past year output has steadily mounted and, for the past few months—i.e., since the American demand—has consistently exceeded a level thought unattainable under the seven-hour day.

RATE OF OUTPUT INCREASES

For the first half of the year the output was at the rate of some 213,000,000 tons per annum and during the last few months of the year the rate increased to approximately 272,000,000 tons. In other words, an increase in annual production rate of 60,000,000 tons is shown, or nearly 30 per cent. All the coal mining districts of Britain contributed toward this increase and it is practically impossible to pick out any one area as being exemplary.

Individual production, never very high, nevertheless improved. At the end of 1921 the pits employed 1,070,000 men; the figure is now 1,030,000. Individual output has risen to 18 cwt. per man-shift worked.

Production costs have decreased satisfactorily. When a government-controlled industry, costs per ton, other than wages, were 9s. 9d., of which 6s. 5d. represented timber and stores and 3s. 4d. other costs. Since decontrol of the industry, the cost of timber and stores per ton produced has fallen to 2s. 5d.; other costs, such as management, are now 3s. 3d.; royalties are 7d. and the contribution to the Miners' Welfare Fund per ton is 1d. Labor charges per ton are 12s. 7d. The net cost of a ton of coal at the pithead is now 18s. 11.58d.

This production cost figure nearly balances the proceeds from commercial disposals, but not quite. The proceeds per ton are now 18s. 11.41d., showing a loss per ton of 0.17d.

Though export figures for October and November are not as high as in September, they show a definite improvement over last year's figures. The United States demand, of course, was abnormal and the British operators wisely recognized it as such and did not count September's exports as an example of what was to be expected from then on. In spite of a fall during October, however, the exports for that month were 700,000 tons over the figure for October, 1921.

This increase cannot be attributed to abnormal demand from any one source. It is believed that this increase will continue and that exports of British coal to such destinations as Continental Europe, South America and India this year will reach their pre-war level.

This year will see fairly extensive development of coal-bearing areas, particularly in Wales. In the anthracite districts enterprise is encouraged by the prospect of Canada and certain areas of the United States becoming permanent customers for Welsh anthracite. The present production of anthracite in South Wales is about 4,000,000 tons annually, or about one-thirteenth of the output of the Welsh coal field, and developments in the steam-coal area are on a much larger scale.

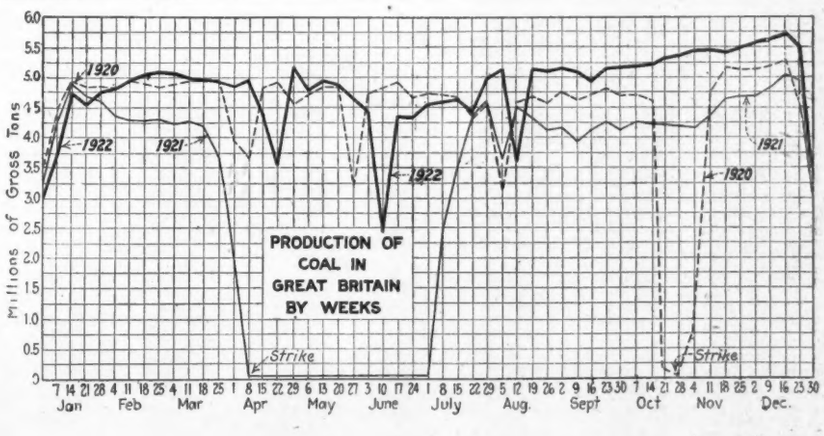
The more important development schemes include the Taff Merthyr Colliery Co., which has acquired 1,500 acres of virgin coal in the heart of the steam-coal area. Two pits are to go down to the steam-coal measures and one to the bituminous seams, which are at a much shallower depth. Work is to be started early this year, and the colliery will be operated on the same lines as all the new pits of the Powell Duffryn Co., by electricity, which will be supplied by that company's power plant at Bargoed. These plans will also be aided by the intention of the Great Western Ry. to electrify certain of its lines in the South Wales fields.

Great hopes have been raised by the anticipation of an early report from an advisory committee appointed by the Mines Department to investigate the question of economies in the cost of production, transport and handling of coal. This committee consists of the former government Coal Controller, the president of the Mining Association of Great Britain, the secretary of the Miners' Federation and the president of the Coal Merchants' Federation. It is known that the committee has collected a mass of statistics, and the recommendation of a number of possible lines of economy on a moderate scale is expected.

OUTLOOK IS PROMISING

What does 1923 hold for the British coal industry? I believe it holds much that is good and little that is bad. There is no doubt that the owners, by wisely cutting profits to obtain customers, have largely restored their prestige in the export markets, and foreign buyers now feel that they may place orders with British collieries with a large measure of confidence that their contracts will be filled on time.

Prices are not likely to fall materially. For the last few months they have been affected in only a minor



degree, which is only to be expected. On the other hand, I do not think they will rise to any extent. Britain's chief market is Europe and what she can get for her coal depends largely on how the exchanges stand. These exchanges are not likely to fall further; indeed, in many cases, they could not. I believe that the prices obtainable at present will rule within a shilling or so throughout the year.

A large measure of the coal industry's prosperity is dependent, of course, on the country's home industries. These have touched bottom during 1922 and are now definitely on the turn, as is shown by a gradual increase in home demand for coal. A better home demand will do much to stabilize prices and provide steady work for more mine workers.

American Emergency Benefited British Coal Industry

Prolonged Miners' Strike Caused Seaboard Industrial Consumers to Replenish Stocks with Welsh Fuel—Canadian Buyers Also Forced to Turn to Mother Country—3,000,000 Tons Shipped Here

GREAT BRITAIN'S coal industry benefited considerably during the latter half of 1922 from the emergency market in North America, created by the prolonged miners' strike in the United States. Not only did large industrial consumers along our seaboard take in considerable tonnage of British coals, but Canadian buyers also placed their orders to fill in the gap caused by the cessation of shipments across our northern border.

Boston and New York were the main ports of arrival in this country, although Baltimore and Philadelphia also received considerable quantities. Of lesser importance as ports of arrival were Portland and Providence.

It is estimated that 250,000 tons of Welsh coal were brought into Montreal alone last year. The majority of this tonnage was for industrial use, although Canada, feeling the shortage of anthracite more keenly than the United States, took a much larger proportion of British coal for domestic purposes in comparison with her requirements than did the United States. Despite active selling campaigns along the Atlantic Coast, Welsh semi-anthracite coal failed to find a ready market as a substitute for our domestic anthracite. Some of the advertisements were misleading as they gave the uninitiated an impression that British anthracite was being sent over in volume, while in reality, because of its prohibitive price, only a few cargoes of real English hard coal were shipped. The domestic coal really received in most cases was not well taken, as it would not stand handling as well as our own bituminous prepared sizes, which began to appear in the Eastern centers when it was apparent that anthracite would not be obtainable in the required volume. Also its distribution area was limited as railroads had published no tariffs, nor were they equipped to carry it inland.

Dry Welsh coals in low ash and volatile content were exploited as a domestic fuel and could be utilized for household consumption. Some houses handling these coals, however, were either unknown or employed sales methods which led to criticism and distrust and reduced the volume of possible trading to a considerable extent.

Varying results were reported from the use of British industrial coal in this country. Railroads and utilities in New England and New York were the heaviest buyers. The D. L. & W. Ry. purchased over 100,000 tons, 40 per cent of which was high volatile, and results were generally satisfactory. The New York Central purchased over 150,000 tons of high-volatile and experienced some trouble at first as the fire boxes were not adapted to it. Later, after the coal had been in use for some time familiarity with it obtained better results. The Seaboard By-Products Co. used a large tonnage at the time the shortage of American coal was most acute and also obtained good results. On the other hand, it is understood that some large consumers such as public-utility plants along the seaboard found that British coal was unsatisfactory and discontinued its use at the first opportunity. The Interborough Rapid Transit Co., of New York, found that it caked when performance was forced,

British Production and Prices, by Weeks, 1921 and 1922

Week Ended	Production (Gross Tons)	Admiralty Large Cardiff	Steam Smalls Cardiff	Best Steams New Castle	Best Gas New Castle	Best Bunkers New Castle
1921						
Jan. 7	4,344,600	70s.@75s.	32s.6d.@35s.	62s.6d.	60s.@62s.6d.	50s.@55s.
Jan. 14	4,897,000	62s.6d.@65s.	32s.6d.@35s.	60s.	55s.@60s.	47s.6d.@52s.6d.
Jan. 21	4,691,000	60s.@62s.6d.	30s.	55s.	55s.	47s.6d.
Jan. 28	4,606,000	57s.6d.@60s.	25s.@30s.	55s.	55s.	47s.6d.
Feb. 4	4,418,000	57s.6d.@60s.	25s.@27s.6d.	50s.@55s.	55s.	40s.@42s.6d.
Feb. 11	4,345,000	59s.@60s.	20s.@22s.6d.	50s.	47s.6d.@50s.	35s.@40s.
Feb. 18	4,284,000	59s.@60s.	20s.@25s.	50s.	45s.@47s.6d.	40s.@42s.6d.
Feb. 25	4,321,000	57s.	20s.	47s.6d.	42s.6d.@45s.	35s.@37s.6d.
Mar. 4	4,259,000	57s.@58s.	20s.@21s.	47s.6d.	42s.6d.@45s.	35s.@40s.
Mar. 11	4,275,000	57s.@58s.	20s.@25s.	47s.6d.	42s.6d.@45s.	35s.@40s.
Mar. 18	4,240,000	57s.@58s.	20s.@28s.	45s.	42s.6d.	37s.6d.@40s.
Mar. 25	3,660,000	57s.@58s.	27s.6d.@30s.	42s.6d.	40s.@42s.6d.	37s.6d.@40s.
April 1	1,950,000	57s.@58s.	27s.6d.@30s	42s.6d.	40s.@42s.6d.	35s.@37s.6d.
April 8	.....	62s.6d.@65s.	27s.6d.@30s.	.....	.....	.....
April 15	.....	62s. 6d.@65s.	30s.@35s.	.....	.....	.....
April 22	.....	62s.6d.@65s.	30s.@35s.	.....	.....	.....
April 29	.....	62s.6d.@65s.	30s.@35s.	.....	.....	.....
May 6	.....	62s.6d.@65s.	30s.@35s.	.....	.....	.....
May 13	.....	59s.@60s.	24s.@25s.	.....	.....	.....
May 20	.....	59s.@60s.	24s.@25s.	.....	.....	.....
May 27	.....	59s.@60s.	24s.@25s.	42s.6d.	.....	.....
June 3	.....	59s.@60s.	24s.@25s.	.....	.....	.....
June 10	.....	59s.@60s.	25s.	.....	.....	.....
June 17	.....	47s.6d.@52s.6d.	18s.@25s.	45s.	42s.6d.	36s.
June 24	.....	45s. @ 47s.6d.	20s.@25s.	.....	50s.	.....
July 1	.....	45s.	20s.@25s.	40s.@42s.6d.	.....	35@37/6
July 8	2,355,000	47s.6d.@50s.	24s.@25s.	.....	40s.	40s.@42/6
July 15	3,927,000	47s.6d.@50s.	25s.@30s.	45s.@50s.	.....	40s.@42/6
July 22	4,332,000	47s.6d.@50s.	25s.@30s.	45s.@50s.	.....	38/9@40s.
July 29	4,587,300	45s.@46s.	25s.@27s.	42s.6d.	38s.9d.	35s.@37/6
Aug. 5	3,619,000	40s.@42s.6d.	20s.@22/6	37/6@40s.	37s.6d.	35s.@37/6
Aug. 12	4,537,000	37/6@38/6	19s.@20s.	32s.6d.	35@37/6	30s.
Aug. 19	4,334,000	36@37/6	19s.@20s.	27/6@32/6	31@32/6	32s.6d.
Aug. 26	4,102,300	32s.6d.	17s.6d.	30s.	30s.@33s.	27s.@28s.
Sept. 2	4,143,900	32/6@33/6	18/6@19/6	27/6@30	28s.	27s.@28s.
Sept. 9	3,940,000	32/6@33/6	18/6@19/6	27/6@30	27s.@28s.	28s.@29s.
Sept. 16	4,161,500	31/6@32/6	19@19/6	28@30	27/6@28/6	27@28
Sept. 23	4,273,900	30@32/6	19@19/6	28@30	27/6@28/6	27@28
Sept. 30	4,114,000	30@32/6	17/6@19	27/6	27@28	27s.
Oct. 7	4,287,000	30@32/6	19@20	27/6	27@28	27s.
Oct. 14	4,238,000	30@31	19@20	27@27/6	27@27/6	26@27
Oct. 21	4,235,000	29@30	19@20	25@27/6	25@26	25@26
Oct. 28	4,210,200	28@29	19@20	24@25	25@26	24@25
Nov. 4	4,182,000	27@28	18/6@19/6	23@23/6	24@24/6	23@23/6
Nov. 11	4,373,000	26/6@27	18/6@19/6	22/6@23	24@24/6	23@23/6
Nov. 18	4,646,000	26@26/6	18/6@19/6	23s.	24s.	22@23
Nov. 25	4,674,000	25/6@26	18/6@19/6	23@24	23s.	21/6@22
Dec. 2	4,693,000	25/6@26	18@18/6	25s	22@22/6	21/6@22
Dec. 9	4,855,000	25/6@26/6	17/6@18/6	24/6@25	22@22/6	21@22
Dec. 16	5,027,000	25/6@26/6	18/6@19/6	24@25	22@22/6	21/6@22/6
Dec. 23	4,965,000	25/6@26/6	19/6	2[illegible]s.	21/6@22/6	21/6@22
Dec. 30	3,050,000	25/6@26/6	18/6@19/6	23/6@24	21/6@22	21@22
1922						
	Production (Gross Tons)	Admiralty Large Cardiff	Steam Smalls Cardiff	Best Steams New Castle	Best Gas New Castle	Best Bunkers New Castle
	3,675,000	24/6@25s.	18/6@19	23/6	21/6@22	21s.@21/6
	4,720,000	24/6@25s.	18@19	23/6@24	21@21/6	20/6@21
	4,561,000	24/6@25s.	18@18/6	24s.	20/6@21/6	20/6@21
	4,739,000	24/6@25s.	17/6@18/6	25s.	21@22	21s.
	4,803,000	24/6@25s.	18@19	24@25	21/6@22	21@22
	4,900,000	24/6@25s.	18@19	24/9@25	22/6@23	22@2/6
	5,001,000	25@25/6	18@19	24/9@25	23s.	23s.
	5,047,000	27@27/6	19/6@20	25s.	23@24	22/6@23
	5,039,000	27@27/6	19/6@20	25s.	23@24	23/6@24
	4,996,000	27@27/6	19/6@20	25s.	24s.	23@24
	4,957,000	27@27/6	19@20	25s.	24@25	23/6@24
	4,920,000	27@27/6	19@20	24/6	24@25	22/6@23
	4,825,000	27@27/6	19@19/6	23@23/6	24@24/6	22@22/9
	4,961,000	27/9@28/3	19@19/6	23/9@24/3	24@25	23/6
	4,384,000	28@28/6	19/6@20	24s.	24@24/6	23/9
	3,544,000	28/6@29	19@20	3/9@24/3	24@24/6	22/6@23
	5,160,000	28/6	19@20	23@24	23@24	22@22/6
	4,765,000	28/6@28/9	19@20	23@24	24	22/6
	4,945,000	28/6@29	19@20	23/6@24	23@24	22/6
	4,804,000	28/6@28 9	19@20	23s.	23@24	22/6
	4,630,000	27/9@28	18/6@19	23/6@24	23/6	22/6@23
	4,441,000	27@27/3	18/6@19	23s.	22/6	21@22
	2,441,000	26/9@27	18/6@19	24s.	22/6	20@21
	4,350,000	26/6@26/9	18@18/6	23/6@24	21/6	20@21
	4,354,000	25/9@26	17/6@18/6	24s.	21/6	19@20
	4,530,000	25@25/6	17/6@18/6	24s.	21/6@22/6	18/6@20
	4,598,000	24/6@25	17/6@18	24s.	21/6@22	20/6
	4,627,000	24@24/6	17/6@18/6	23@24	21/6@22/6	20/6
	4,391,000	25s.	18@18/6	24@25	22/6@24	21/6
	4,898,000	29@30	17@21	24@25	25s.	23@25
	5,122,000	29@31	21/6@22/6	25s.	25s.	25s.
	3,623,000	29@31	21/6@22/6	25@26	25s.	25s.
	5,158,000	30@32/6	22@22/6	25@26	25s.	25s.
	5,148,000	31@32/6	22@22/6	25@26	24@25	23/6@24/6
	5,204,000	30@31	22@22/6	25@26	24s.	23/6@24
	5,161,000	29s.	19s.	24/6@25	24s.	21/6@22
	4,995,000	27/6	18@19	24@24/6	23/9	22/6@23
	5,144,000	26/6	16/6	24@24/6	23/9	22/6
	5,177,000	26@27	16@16/6	24/6@25	23@24	23s.
	5,209,000	27@28	16@16/6	25@26	23@23/6	22/6@23
	5,255,000	27/6@28	16@16/6	2[illegible]/6@27	23 6@24	22/6@23/6
	5,355,000	27/6@28	16@16/6	27s.	24@25	23/6
	5,388,000	27/6@28/6	16@16/6	27s.	24@25	23/6
	5,423,000	28@29	16@17	27s.	24@25	23/6
	5,441,000	28@28/6	16@17	25/3@27	24@25	23@24
	5,376,000	28@28/6	16@17	25/3@27	24@25	23@23/6
	5,472,000	28@28/6	16@17	25@25/3	24@25	23/6@24
	5,573,000	28@28/6	16@16/6	25/6@26	24@25	22/6@23/6
	5,592,000	28/6@29/6	17@18	25/6	24@24/6	23/6
	5,742,000	28@28/9	16/6@18/6	25/6@26	24@25	22/6@23/6
	5,506,000	28@29	17/6@18	25s.	24@24/6	22@23
	.....	28@28/6	18@19	25s.	25s.	22@23

and though this was remedied somewhat by experiments, purchases were stopped as soon as possible. Some New England railroads which bought heavily during the emergency obtained fairly good results from gas or locomotive fuels from the Eastern ports of England and availed themselves of British offerings right up to the close of the year.

The Boston & Maine R.R. purchased about 380,000 tons of British coal and received approximately 290,000 tons during 1922, 95 per cent of which was high volatile. Only a small percentage of this was satisfactory, however, the objection on some of the coals, as North Wales unscreened, Yorkshire, Derbyshire and Lancashire being the low fusibility of the ash, which caused excessive clinkering. The large percentage of ash in the coals of higher fusibility was very unsatisfactory, even in those fuels which were bought "all-large."

During the period of real emergency the Southern coals from Hampton Roads filled in remarkably well but with the easier prices which followed the resumption of union mining, the smaller receipts of British coals were offered at prices that were difficult to meet. The Southern fuels, finding the Western market in need of tonnage, were able to obtain their own price in that territory and New England railroads were able to eke out their requirements with British coal at attractive figures.

In all, about 3,000,000 tons of British coal was sent to this country, shipments being about equally divided between the British Channel and eastern ports. The movement started late in July; during August slightly less than 1,000,000 tons were sent forward to the United States and Canada and about 1,250,000 tons during September. The October figure was not so large and shipments declined steadily until a few scattered cargoes for New England railroads now represent the only activity in the markets of the United States. The total quantity moved to this country last year approximates the volume that Great Britain imported in 1921 during her strike troubles, but for which she paid exorbitant figures when compared with the prices at which British coal entered North America.

UNLOADING FACILITIES UNEQUAL TO LOAD

The sudden strain on our port unloading facilities caused a heavy congestion of loaded boats almost at the outset. Many diversions of cargoes from one port to another were necessary, but they failed to do more than slightly lighten the demurrage costs caused by the long delay in unloading. Another bad feature was the type of vessels which brought in this emergency fuel. In many cases the hold construction was so different from our own vessels that the unloading machines were slowed down to a degree that caused heavy demurrage penalties.

The cost of the coal laid down on this side for a few of the railroads in New England ranges cheaper at this writing than on our own coals and results show that the differential can still be narrowed considerably before the competitive position of this foreign coal is menaced. Westbound cargoes of British coal can be taken as ballast for ships engaging in the South American trade and thus the cost of ocean transportation is minimized and Great Britain is enabled to partially maintain her exports of emergency fuel to this country.

A permanent market for this coal in New England is extremely unlikely, however. American coal shippers are rapidly getting into competitive position again, domestic qualities are more familiar and therefore preferred and Great Britain is out of line as soon as her normal markets recover from their long depression.

Shipments of British coal to New York, which had practically ceased in December, were resumed the last week and it was reported that contracts for large tonnages for January and February delivery had been awarded.

Germany Loses Rank as Second Largest Coal Exporter

Division of Upper Silesia Makes Nation Dependent on Imports—Production Suffered from Decreased Efficiency of Miners—Improvement Results from Overtime Shifts in Ruhr District

BY H. O. HERZOG
Berlin, Germany

THE year 1922 was an eventful chapter in Germany's coal situation. The division of Upper Silesia completed the great change wrought by the peace treaty, reducing Germany from her position of the second largest coal exporting country of the world to one dependent on imports. From being one of the main sources of Germany's wealth in pre-war times coal has become a source of constant worry and trouble; from a strong support of foreign trade balance into a deadweight on the country's already strained finances, which was in no slight degree responsible for the rapid fall of the mark in recent months. It is now a national problem of the first order and in its direct and indirect bearings the ruling factor of Germany's economical life. Coal prices determine the prices of all other products; their movement is the basic factor of the movement of wages. In one word, coal has become the real basis of the German currency.

Coal shortages have existed in previous years, but they were somewhat exaggerated in the interest of the constant struggle carried on for a more favorable adjustment of the coal tribute to the Entente countries. In 1922 the coal shortage became a real fact. Factors which combined to make the coal situation a precarious one was the loss of the greater part of Upper Silesia, the decline of production in the Ruhr district, the general business boom, and the railroad strike, which, although short, caused disorganization of traffic of some duration. Through the division of Upper Silesia Germany lost 75 per cent of that province's output, nearly half of its production of coke, and a large part of the country's most accessible coal reserves. Several months prior to the Upper Silesian plebiscite riots and political agitation exercised a disturbing influence upon the Upper Silesian coal production, while after the division, failure of the transportation system deprived the country for a time of the supply not only from the alienated part but also from the part remaining to Germany.

Production in all mine fields suffered under the falling efficiency of the workmen, which doubtless is due in some degree to their reduced physical ability but in the main to the latent labor conflict. This conflict is of a complicated nature. If the miners are to be believed, their attitude is caused by disappointment over the promised socialization of the mines. The true inner cause, however, is dissatisfaction with their wages. This dissatisfaction will and must exist as long as the men do not receive the full equivalent of their pre-war wages. Their leaders, however. evade the fact that against an increase of 35 per cent of the mines' complement stands a decline of 20 per cent in production. The following figures, showing the daily output computed per head of the complements in the Ruhr district and the ratio of the annual German output per head of the total number of the employed for the last three years in comparison with 1913, are illustrative in this respect:

	1913	1920	1921	(Jan.-Aug.) 1922
Daily output per head of Ruhr complement, in kg:....	883	592	561	556
Average output of total number employed in annual production, in tons:	280.7	188	181.7	179

Since September, 1922, an improvement has taken place in the Ruhr district, due solely to the overtime shifts consisting in an extension of the working time by two hours during three days of the week, or of 14½ per cent. As the result of this overtime work the rate of daily output per head increased

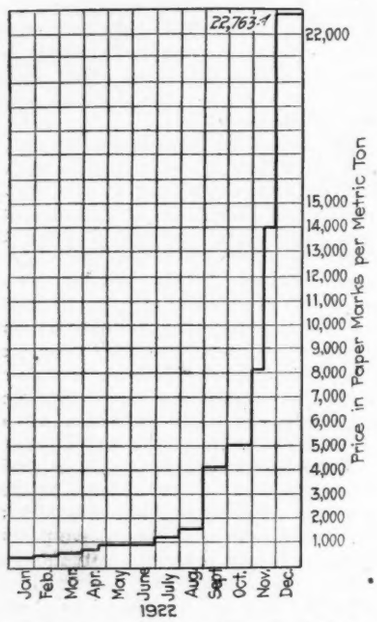


FIG. 1—TREND OF GERMAN COAL PRICES, 1922

in September to 571 kg., or 10.2 per cent, and in October to 610 kg., or 11 per cent. In November it advanced even to 620 kg. Taking into account the difference of working time, which in 1913 was nine hours per day, whereas it is now seven hours, the standard of efficiency of the miners is at present 80 per cent. If this appears satisfactory it has to be considered that the efficiency of equipment has been raised to some extent.

The monthly outputs in 1922 show considerable fluctuation. In the first three months the rate of production was improving in the following months it declined until August, when it sunk below the level of previous years. A recovery took place beginning in September, produced by the overtime shifts already mentioned. If the total falls behind the production of the preceding year by 8,000,000 tons, it is due to the territorial changes in Upper Silesia. The loss since the division of the province amounts to 14,000,000 tons.

The production of coke has advanced satisfactorily. The progress made in this respect since 1920 is over 4,000,000 tons. Of the 26,000 coking furnaces owned by Germany in 1913, 4.000 have been lost to Poland. Of those remaining only some 80 per cent were in operation at the end of 1921, which number has been steadily increased in the course of the year on the spur of pressing needs. Production of brown coal has only slightly advanced beyond the output of 1921. It seems that the rapid progress in the production of brown coal has for the time being come to a standstill.

The most marked change in the German coal situation during 1922 is the enormous rise of prices. Starting with 405 marks per ton at the beginning of the year, prices on Dec. 1 reached a level of 22,763 marks for the standard grade of Ruhr fat run of mine. The movement of prices is shown in Fig. 1.

The rise of prices was to some degree caused by the increase of the coal tax from 20 to 40 per cent, which took place in April, but in the main is due to the depreciation in exchange. The tendency was to keep prices at a level of approximately 8 gold marks without coal tax and turnover tax, but they have sunk considerably during certain periods of the year when depreciation in exchange was marked. Fig. 2, in which the stepped curve gives the ratio of coal prices to their pre-war price, and the dashed line the ratio of the exchange to pre-war parity, shows the tendency of the price movement.

Steeper still than the rise of coal prices was the increase in cost of mining material, many items of which have already reached the world market level.

With regard to miners' wages an important change took place in the course of the year 1922. In previous years they have been adjusted at considerable intervals by protracted negotiations. The rapid upward movement of the cost of living in 1922 practically installed the system of keying them to the index for the cost of living in the mining districts, adjustments being made from month to month. The average wages paid to miners at the beginning of the year was at the ratio to pre-war wages of 70 to 1; at the end of the year is was 450 to 1.

Basic factors in production costs and revenue at the end of the year, were at the following ratio to pre-war standard: Cost of material, 1,900; cost of labor, 450; price of coal (less taxes), 1,100. As can be seen, the net price paid to the mines for coal keeps somewhere midway between labor and the component parts of cost of production. In drawing conclusions with regard to the financial situation of the mines it must be considered that the level of wages paid, indicated by the ratio of 450 to 1 above pre-war level, is exclusive of the miners' other emoluments and takes no account of the fact that the ratio of expend ture in wages and salaries per ton of coal has risen by about 60 per cent on account of the lower efficiency of the miners and the increase of staff. The real margin between the price of coal and cost of labor is much narrower than appears from the above index figures; in fact it is hardly sufficient to compensate for the excess price of the other items of cost.

Another prominent feature of the German coal situation in 1922—in its financial aspect doubtless the most prominent one—is the growth of foreign imports. In pre-war times Germany imported coal, chiefly of British origin, but imports were largely exceeded by exports. In 1913, for instance exports of 34,500,000 tons stood against imports of 10,500,000 tons. But conditions now are entirely reversed. Exports from Upper Silesia to neighboring countries, carried out under Entente control, having stopped, there remain only the small quantities supplied to Holland under contract in return for a rotating credit to the German industry, and a similar arrangement with Switzerland on a smaller scale. Leaving out of consideration the coal tribute to the Entente, exports now average 120,000 tons per month, against which stand imports which in the second half of the year far exceeded 2,000 000 tons per month. The chief originating countries were Great Britain and since the division of Upper Silesia—Poland.

COAL IMPORTS BY MONTHS, 1922 AND COST IN PAPER MARKS

	Tons	Paper Marks
January	194,078	148,000,000
February	162,735	150,000,000
March	284,979	422,000,000
April	336,921	332,000,000
May	333,754	432,000,000
June	789,797	1,108,000,000
July	2,394,933	51,008,000,000
August	2,385,724	48,771,000,000
September	2,385,038	50,728,000,000
October	2,231,936	61,374,000,000
November	1,588,243	39,753,000,000
Totals	13,088,138	254,226,000,000

The coal situation at the end of the year may be summed up as follows: The present rate of production is insufficient for the needs of the country. After deducting from the output the coal tribute to the Entente, approximating 18,000,000 tons per year, a certain amount has to be imported, even under most favorable conditions for the supply of the shipping trade on the one

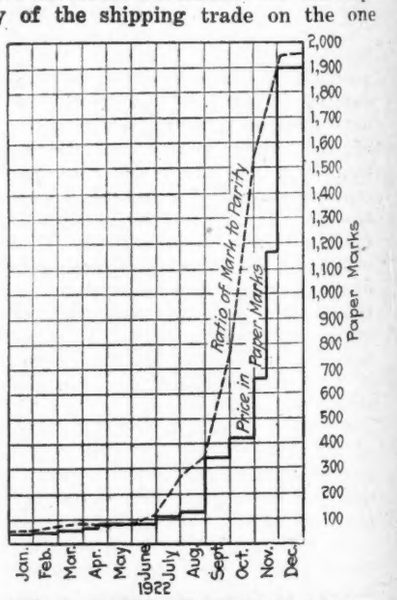


FIG. 2—RATIO OF GERMAN COAL PRICES TO PRE-WAR RATE OF EXCHANGE

Solid line shows ratio of coal prices to pre-war. Broken line shows ratio of gold mark to parity.

GERMAN COAL PRODUCTION IN 1922 COMPARED WITH PREVIOUS YEARS
(In 1,000 Tons)

	Bituminous Coal	Brown Coal	Coke	Patent Fuel—Bituminous Coal	Patent Fuel—Brown Coal
1913 (Within pre-war frontiers)	190,109	87,233	34,630	6,992	21,917
1913 (Within present frontiers)	173,096	87,233	32,653	6,811	21,977
1920	131,341	111,880	25,177	4,938	24,273
1921	136,210	123,011	27,921	5,688	28,243
1922*	128,301	124,776	29,248	5,435	27,277

*The production in November is inserted according to preliminary returns and the December production by estimates based upon intermediate reports.

hand and of the eastern part of Germany from Poland on the other. To balance the cost of these imports and to ease the market situation an increase in production of from fifteen to twenty million tons is needed. This also would help to meet further Entente demands.

Increase in production up to now has been a question of the number of miners employed. In view of the expensive housing problem and the state of the development of the mines, this number is limited, in fact, has arrived at this limit. Under present conditions. the only recourse is to the extension of the working time. An increase in the miners' efficiency is not taken into consideration for the present, as the required outlay for labor-saving equipment and the equally essential introduction of payment by results are out of the question now. Against the extension of the working time stands the miners' strong resistance. Their recent concession with regard to overtime shifts in the Ruhr district was made in a half-hearted way, only on the pressure of convincing circumstances.

With regard to the further development of mine capacity, no results on a large scale can be expected in the coming year. Of shafts now in process of sinking, five or six in the Ruhr district will be completed in the coming year, each estimated to have a capacity of about a million tons per year.

Fewer Coal-Mine Fatalities in 1922 Than in 1921, But Ratio to Output Is Higher

By W. W. Adams[1]

ACCIDENTS at coal mines in 1922 will show fewer men killed than in 1921, but the fatality rate based upon the output of coal will be higher. Reports from state inspectors covering the first eleven months, supplemented by an estimate for December, indicate that fatal accidents will number about 1,950, a reduction of 23 from the year before. Later reports may change this estimate.

The reduction in fatal accidents should have been much larger than the record will actually show, because during five months of the past year a large part of the coal-mining industry was shut down by the miners' strike, thus eliminating accidents that would have occurred had the mines been operating.

The reduction in fatalities during the five-month strike period was completely wiped out by the great loss of life in major disasters during the past year. The year's record shows 13 accidents in each of which five or more men were killed, with a total loss of 272 lives. In 1921 only five similar accidents occurred, in which 34 men were killed. To speculate is not always to waste time; had these major disasters during the past two years been prevented, the year 1922 would show 261 lives saved as compared with 1921.

Most of the larger disasters, of course, were mine explosions, and to their occurrence the increased fatality rate in 1922 is almost entirely attributable. There was a negligible increase in haulage accidents. Accidents from the use of powder and other explosives resulted in a fatality rate only two-thirds as large as the rate for 1921.

The following figures show the number of fatal accidents in each month during the past two years, the numbers in parentheses indicating the number of deaths from major disasters:

	1921	1922
January	197	158 (6)
February	160 (12)	228 (43)
March	137 (5)	196 (22)
April	164	78
May	173	84 (11)
June	170	103
July	162	84
August	155 (11)	102
September	167	163 (5)
October	180	199 (8)
November	158	349 (177)
December	150 (6)	203 Est.
Totals	1,973	1,947

[1]Statistician, U. S. Bureau of Mines.

It will be noted from the foregoing that only five months of the past year were free from major accidents, although half of the mines were on a non-producing basis from April 1 to Sept. 1. During 1921 the mines were operated eight months without the occurrence of a major disaster.

From the latest reports available it is estimated that the fatality rate from all causes for the past year will be 4.28 per million tons, as compared with 3.90 in 1921.

Falls of roof and coal always cause nearly half of all fatalities at coal mines, except in years of numerous deaths from gas and dust explosions. The actual number of deaths varies according to the quantity of coal mined, number of men employed, and period of active operation of the mines. The usual standard for comparing the increase or decrease in the frequency of accidents is the production of coal and the number of employees working any uniform period of time.

Choosing these usual standards, accidents from falls of roof and coal during the past year (excluding December) have shown a rate of 1.93 per million tons as compared with 2.01 in 1921. The lowest rate during the past eleven years was 1.72 in 1920 and the highest was 2.54 in 1911. On the basis of the number of men employed underground, the rate in 1921 was 2.58; for 1922 the rate cannot be stated, because the number of employees is not yet known. The highest rate since the bureau's organization was 2.83 in 1911; the lowest was 2.30 in 1916.

Falls of roof and coal constitute a class of accidents for which the miners themselves must shoulder most of the responsibility. The miners are constantly at the working places, they have the opportunity to continually observe the conditions of the roof, and they are best able to tell when rock or coal should be removed or additional props put up. Their safety is largely within their own keeping, and they have it within their power to eliminate perhaps half of all deaths from falls of roof and coal, and thus save more than 400 lives each year.

The responsibility for mine explosions cannot be charged entirely to the employees or to the company. Both must share the responsibility. While the immediate cause of an explosion of gas or dust may be the careless act of an employee, any failure to keep the mine in safe condition to prevent explosions must be charged against management. During the past year eleven explosions have resulted in 261 deaths, as compared with three explosions in 1921 resulting in 21 deaths. The death rate from these explosions in 1922 was 0.73 per million tons, more than three times the rate for the previous year, which was 0.23. In only two instances during the past eleven years has the 1922 rate been exceeded: in 1911 the rate was 0.74; in 1913 it was 0.90. The lowest rate was 0.19 for 1918. For each thousand employees the rate in 1921 was 0.29 (rate for 1922 not available). The rate for 1913 was the highest, 1.04 per thousand men, while the lowest rate was 0.25 for 1918.

Wetting or Dusting Needed

It has been demonstrated that explosions may to a great extent be prevented either by thoroughly wetting the coal dust or by diluting it with shale dust or limestone dust, thus rendering the mixture of rock and coal-dust non-explosive. The reduction in the number and severity of explosions in recent years has shown the effectiveness of precautions against explosions, and their recurrence in 1922 with heavy loss of life indicates the necessity of constant watchfulness against this class of mine accidents.

In recent years fatal accidents caused by underground haulage have constituted about 17 per cent of the deaths from all causes at coal mines. The fatality rate per million tons during the first eleven months of 1922 was 0.71, representing a loss of 290 lives, as against a rate of 0.67 for the full year 1921, during which 338 men were killed. A rate of 0.77 per million tons in 1911 was the highest during the past eleven years; the lowest rate was 0.62 in 1920. On the basis of the number of men working underground, the reports for 1921 show 0.86 deaths per thousand employees, as compared with 0.84 in the preceding year. The year 1918, with its record-breaking production of

MAJOR COAL-MINE DISASTERS OF 1922

Date	Name of Mine	Location	Nature of Accident	Killed
Jan. 30	Layman	Pineville, Ky.	Coal-dust explosion	6
Feb. 2	Belle Ellen No. 2	Belle Ellen, Ala.	Gas explosion	9
Feb. 2	Gates No. 2	Brownsville, Pa.	Coal-dust explosion	25
Feb. 7	Marietta	Pinson Fork, Ky	Coal-dust explosion	9
March 20	Dilltown No. 1	Dilltown, Pa	Gas explosion	5
March 24	Sopris	Sopris, Colo.	Coal-dust explosion	17
May 25	Acmar No. 3	Acmar, Ala.	Coal-dust explosion	11
Sept. 23	Raleigh-Wyoming No. 2	Glen Rogers, W. Va.	Falling cage	5
Oct. 20	No. 11	McCurtain, Okla.	Gas explosion	8
Nov. 3	Eddy Creek	Olyphant, Pa.	Premature shot	6
Nov. 6	Reilly No. 1	Spangler, Pa.	Gas explosion	77
Nov. 22	Dolomite No. 3	Dolomite, Ala.	Coal-dust explosion	87
Nov. 25	No. 4	Cerrillos, N. M.	Gas explosion	7

coal, had the highest rate from haulage accidents of any year since 1911; 0.99 deaths per thousand men employed. The lowest rate during the past eleven years was 0.81, in 1915. Considering haulage accidents over five-year periods beginning with the period 1911 to 1915 there has been a slight upward trend in the death rate per 1,000 employees.

Accidents from explosives normally are charged with about 6 per cent of all coal-mine fatalities. During the period January to November of the past year, 86 men were killed by explosives indicating a rate of 0.21 per million tons, as against 0.30 in 1921. The highest rate during the past eleven years was 0.37 per million tons, in 1919, due to the loss of 92 lives from a powder explosion in the Baltimore tunnel near Wilkes-Barre, Pa., on June 5. The lowest rate, 0.17 per million tons, was in 1917. For each thousand men employed the rate in 1921 was 0.39 (1922 rate not available). On this basis the year 1919 again had the highest rate, 0.48 per thousand employees, and the year 1917 the lowest, 0.22 per thousand.

The yearly increasing quantities of permissible explosives used in coal-mining operations in proportion to the output of coal is effecting a reduction in the loss of life in accidents due to explosives and in explosions of gas and dust. Figures covering the past eleven years show a downward trend in the death rate from explosives notwithstanding an occasional setback such as that indicated by the record of 1919.

Accidents due to electricity account for 2 to 4 per cent of the yearly total of coal-mine fatalities. In eleven months of 1922 the number of deaths was 69, representing a rate of 0.169 per million tons, as compared with 0.158 in 1921. The highest rate since the bureau's organization was 0.189, in 1911; the lowest was 0.115, in 1920. For each thousand men employed the rate in 1921 (latest available) was 0.203; the highest during the past eleven years being 0.211, in 1911, and the lowest 0.155, in 1917. With the increasing use of electricity in coal mines and the continual rise in the daily output of coal per man, a gradual decline in the fatality rate, however small, is an indication that mining companies are giving serious attention to the prevention of accidents from electricity.

The installation of undercutting machines in greater numbers each year and the improvement and enlargement of haulage equipment in coal mines are making possible a larger daily and yearly average production of coal per employee. The installation of any mechanical device naturally introduces new hazards into mining operations, although the net result of the installation may be a reduction in the total number of accidents from all causes combined. Such is the record regarding mining machines. The accident rate from this specific cause is higher in recent years than it was before machines came into such general use, but the accident rate in the coal-mining industry has declined and the individual employees daily production has increased. In 1922 the eleven-month fatality rate, based on 16 deaths, was 0.039 per million tons, as against 0.036 the year before. The highest rate in eleven years was 0.056, in 1920, and the lowest was 0.013, in 1912. The total number of deaths caused by mining machines usually is less than 1 per cent of the deaths from all causes. On the basis of the number of employees the rate in 1921 was 0.046 per thousand, the highest rate during the 11-year period being 0.077, in 1920, and the lowest being 0.016, in 1912.

Mine fires that have not resulted from gas or dust explosions or followed such explosions have not been the cause of many fatal accidents in coal mines, as compared with other causes of accidents. The annual loss of life in mine fires usually is much less than 1 per cent of the deaths from all causes. Yet it is imperative that this class of accidents be guarded against to prevent injury or death to employees and destruction to property either directly from the fire or through an explosion following a fire. No deaths from mine fires were reported in 1922, The highest rates were 0.151 per million tons and 0.169 per thousand employees, in 1911, while the lowest were those for 1915, which were 0.002 per million tons and per thousand employees.

Federal Coal Legislation Unlikely This Year

BY PAUL WOOTON

WHILE the prospects are that coal will not be the subject of important legislation during 1923, the findings of the President's Coal Commission, the creation of which was the principal legislative act affecting the coal industry during 1922, may pave the way for far-reaching coal legislation in 1924.

Due to the fact that the Coal Commission's studies will last during the greater part of the year, it hardly is probable that any legislation will be considered this year, even if it be urgently recommended in the final report of the commission. Congress moves slowly in all matters. particularly in cases where the interests of large blocks of voters are concerned.

If a strike should materialize it is practically certain that an attempt will be made to meet the situation in a legislative way. The country would clamor for action before the strike would progress far. It may be assumed that the Coal Commission would give the operators and the miners time to get together, but if they should show signs of settling down in their trenches for another long drawn-out fight there is every reason to believe that the Coal Commission would come forward with a drastic recommendation which would require an act of Congress to put into effect. It is conceivable that the situation which a strike would precipitate might induce the President to call Congress in extra session for that purpose.

The year 1922 saw Washington again become, as in war days, the focal point of interest in the coal industry. Early in the year, attention centered in the capital because of the efforts being made to avert the strike. As the strike progressed the government stepped in—at first to prevent a runaway market. Then it began its control over distribution, and finally its hand was thrust in to force the termination of the strike. Out of it all grew the legislation which set up the fact-finding commission.

Important as were the precedents set in the matter of coal distribution, two events stand out with particular clearness even in a year fraught with spectacular developments in coal. Secretary of Commerce Hoover carried through a price-fixing program which probably was more effective than it would have been had he acted under an iron-clad statute. Without a semblance of law to strengthen his request, he sought and obtained the whole-hearted cooperation of the producers of 80 per cent of the country's coal tonnage in the fixing of maximum prices.

The other event was the passage of the Coal Commission Act. Since its creation the Coal Commission has been taken seriously by the industry. It is believed that as its work progresses it will come to be looked upon as of more and more importance by those who engage in businesses that touch coal. There are many who believe that from the findings of this commission will flow those revolutionary changes necessary to alter the coal industry from an overdeveloped, loosely-hung and blundering conglomeration of institutions and processes into a well coordinated, smoothly functioning activity which will make possible an accelerated industrial expansion.

Coke Industry Recovered in 1922 Despite Difficulties

Byproduct Output Was 28,319,000 Tons—8,007,000 Tons of Beehive Produced—Ovens Consumed 53,311,000 Tons of Coal—Several Plants Install New Ovens

BY R. S. McBRIDE

THE year 1922 in the coke industry can well be characterized as one of recovery despite difficuties. The industry has continued to demonstrate that it is a splendid barometer of industrial conditions—perhaps even better than the iron and steel industry, which is commonly so highly regarded as an index of industrial development.

The estimated production of coke during 1922, based upon official returns of the U. S. Geological Survey for eleven months and estimates for December, is 37,326,000 tons, of which 28,319,000 tons was byproduct coke and 8,007,000 tons was from beehive ovens.

Byproduct coke has again outstripped beehive coke and more or less dominates the situation. One should not conclude from these data for the year as a whole, however, that the byproduct branch of the business is really more than three times as large under normal circumstances as the beehive branch, for during the middle of the year the beehive industry suffered more severely through strike conditions, especially in the Connellsville district. This fact is brought out quite clearly by the monthly production figures for the year, which are given in Table I.

BY-PRODUCT OVENS END YEAR WELL

The byproduct coke ovens of the country were operating at approximately 50 per cent of capacity at the beginning of 1922. For the first six months of the year the activity of this branch of the business increased steadily, so that in June about 70 per cent activity was estimated by the U. S. Geological Survey. The coal shortage during July and August, however, cut down activities again, production during July being 68 per cent and during August only 49 per cent of the installed-oven capacity. With the resumption of adequate fuel supply in September a prompt renewal of activity ensued, and production during November and December was approximately 80 per cent of the entire installed-oven capacity of the country.

During the year there were regularly from 10 to 15 plants idle. Altogether 16 plants were idle for a full month or more; but during no single month were more than 14 of the total number, 71 plants, entirely shut down. Seven plants were idle the entire year. No new plants began operation during 1922 but a few ovens were added to some of those already in operation.

At the beginning of 1922 three plants had new ovens under construction. These were the Woodward Iron Co., 30 ovens; Chicago By-product Coke Co., 5 ovens, and Milwaukee Coke and Gas Co., 50 ovens. All of these were completed during the year and some of them began operation.

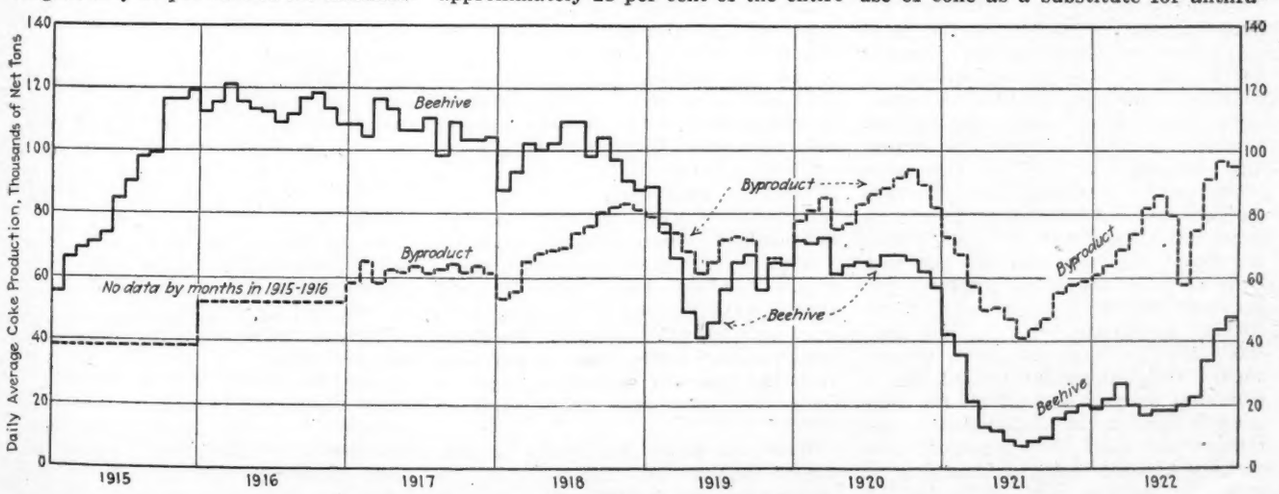
The coke industry normally takes about 15 per cent of the bituminous coal produced in the United States. However, in July of 1922 there were used in the coke ovens then active approximately 28 per cent of the entire coal production that month. Of course with normal coal production no such percentage of the coal would ever go into coke ovens, but the quantity so used will undoubtedly be large at all times.

In Table II are given figures for the coal consumption in both byproduct and beehive ovens and the total of the two, by months. These figures are those estimated by the U. S. Geological Survey on the assumed basis of 69.6 per cent yield of byproduct coke from coal and 63.4 per cent yield of beehive coke and coal, the average yields for the industry during the preceding calender year. The December figures are estimates.

At the beginning of 1922 there were in stock at many of the byproduct coke plants several hundred thousand tons of coke for which no market was available. Certainly at no previous time in the history of the industry was there ever on hand anything like this quantity of coke. However, as it became evident during the summer that anthracite would not be available in anything like the usual quantities, purchasers became increasingly interested in the use of coke as a substitute for anthra-

TABLE I—COKE PRODUCTION IN 1922
(In Net Tons)

	Byproduct Coke		Beehive Coke		
	Production	Daily Average	Production	Daily Average	Totals
January	1,879,000	61,000	496,000	19,000	2,375,000
February	1,795,000	64,000	549,000	22,000	2,344,000
March	2,137,000	69,000	732,000	27,000	2,869,000
April	2,208,000	74,000	528,000	20,000	2,736,000
May	2,537,000	82,000	432,000	17,000	2,969,000
June	2,580,000	86,000	458,000	18,000	3,038,000
July	2,486,000	80,000	450,000	18,000	2,936,000
August	1,794,000	58,000	539,000	20,000	2,333,000
September	2,244,000	75,000	606,000	23,000	2,850,000
October	2,806,000	91,000	878,000	34,000	3,684,000
November	2,908,000	97,000	1,139,000	44,000	4,047,000
December (est.)	2,945,000	95,000	1,200,000	48,000	4,145,000
Totals	28,319,000	78,000	8,007,000	26,000	36,326,00



PRODUCTION OF BEEHIVE AND BYPRODUCT COKE, BY MONTHS, 1915-1922
In the earlier years the older type of ovens produced the more coke, but in 1919 the output of byproduct ovens passed the beehive and is now well in advance

TABLE II—COAL CONSUMED IN COKE PRODUCTION, 1922
(In Net Tons)

	In Byproduct Ovens	In Beehive Ovens	Total
January	2,699,000	782,000	3,481,000
February	2,579,000	866,000	3,445,000
March	3,071,000	1,155,000	4,226,000
April	3,172,000	833,000	4,005,000
May	3,645,000	681,000	4,326,000
June	3,707,000	722,000	4,429,000
July	3,571,000	710,000	4,281,000
August	2,577,000	850,000	3,427,000
September	3,223,000	956,000	4,179,000
October	4,032,000	1,384,000	5,416,000
November	4,179,000	1,797,000	5,976,000
December (est.)	4,230,000	1,890,000	6,120,000
Total	40,685,000	12,626,000	53,311,000

cite. During midsummer the movement of this coke for gas making and for other industrial operations became active and with the early autumn it was an exception to find any unsold coke in stock.

The use of coke as a domestic fuel in place of anthracite has developed more slowly, but inability to get anthracite has compelled attention to this fuel and it is believed that thousands of households are served by coke which have never before used this fuel. This wide market, of course, promises to offer a balance-wheel for the industry which it has never before had. The exact tonnages so employed this year are not known, but it is certain that several times as much coke has been employed for domestic fuel as ever before.

Connellsville Beehive Coke Industry in Retrospect

BY JOHN L. GANS

The significant and outstanding feature of the beehive coke industry of the Connellsville region during 1922 was that it proved it had the vitality to withstand, and the recuperative power to gradually overcome, the effects of the handicaps imposed by the most skilfully planned and directed attack by organized labor, just as, during the year preceding, it had demonstrated its ability to "come back" after the most severe and most prolonged depression in the history of American industry.

These proofs of the industry's resistibility and resiliency are the more noteworthy in view of the changed relationship between the beehive and the byproduct methods of coke manufacture. Until three years ago the supremacy, in point of tonnage output, was indisputably held by the more primitive of the two methods. In 1880 the beehive oven had begun to win an important place for itself in the manufacture of pig iron, and for almost a score of years thereafter produced 100 per cent of the coke used in blast-furnace operations. It was not until 1900 that the byproduct oven became commercially successful; in that year it furnished 5.6 per cent of all the coke manufactured in the United States. Although the gain in byproduct grew steadily and increasingly from year to year, it was not until 1919 that its cruder and more wasteful competitor was surpassed for the first time. When this fact first became known in coke-trade circles prophecies were uttered which, had they been construed literally, would have meant that the beehive oven as a factor in metallurgical fuel production was doomed to early and complete eclipse.

In each of the three succeeding years the lead of the byproduct oven was increased; to 60 per cent in 1920, 78 per cent in 1921 and to a still larger proportion in 1922. To the surprise of some of the prophets and to the dismay of others, the beehive oven has persisted in its refusal to withdraw from the now seemingly unequal contest. That it still possesses certain inalienable rights as the original entrant, even if now encumbered in the race, has, by the events of the past two years, been clearly established. At least that must be one of the conclusions as to the result of the gruelling the industry has undergone during an unprecedented closing down of enterprises which are consumers of coke, followed in less than a twelve-month by the most determined effort to unionize the field.

SUFFERS A PERMANENT LOSS

In all periods during which the operation of the Connellsville region has been interrupted by breaks in the continuity of industrial activity or otherwise, losses of trade have been sustained. These have been as regularly, but often very slowly, regained in large part, but a careful study of the records reveals the fact that whenever events or circumstances have lessened the opportunities of the coke producers to get their product to the consuming markets, subsequent operation has been restricted for more or less prolonged periods and, to a limited extent, permanently affected thereby.

When the sympathy strike was inaugurated in the Connellsville region on April 1, 1922, it virtually eliminated the merchant and independent furnace producers of beehive coke, and cut the United States Steel Corporation's coke subsidiary down to a 30-per cent basis during the first two months of the partial walkout. Meantime the byproduct plants with reserve stocks of coal on hand, and coal later procurable from the non-union mining districts, were able to continue making coke. The byproduct plants operated at a close approach to maximum in order to take care of customers who had previously been dependent upon the Connellsville region. It was not until early in the autumn months of 1922 that the merchant and independent furnace coke producers began their resumption movement, which gained headway from week to week until toward the end of the year both were back to better than the pre-strike basis; in fact better than at any time since the post-war depression began to issue its "run-slow" orders early in 1921.

What the immediate future, as embraced within the compass of the twelve months of 1923, may have in store is, as heretofore, largely dependent upon the iron and steel trades. If, as has been predicted by many sanguine forecasters, these trades are to prosper in an unexampled degree, the Connellsville region—still looked to as an important source of metallurgical fuel—probably will make 1920's weekly average production of 202,000 tons the minimum during the new year.

The strike of the coke workers having levied a tax, in the form of higher labor and other costs of production, which could not all be charged off when the books for 1922 were closed, no gift of prophecy is required to forecast with reasonable certainty of fulfillment that prices during 1923 will hold to a level which will be fairly representative of the enhanced value of the region's product.

That period having passed when coke operators are willing to sell their output merely in order to keep the smoke rising from their ovens, the policy of curtailing production when the price approaches uncomfortably to the limits of a remunerative profit, or unconsigned cars begin to accumulate for lack of destinations or orders, will be continued as a stabilizing measure, according to the practice of several years past.

Although the equipment of the region was reduced from 150 plants and 35,473 ovens to 143 plants and 35,042 ovens at the close of the year—a loss of 7 plants and 431 ovens—its practical productive capacity is about the same as at the beginning of 1922. The plants and ovens retired were for the most part out of operation for all of the year, hence contributed nothing to the year's gain of slightly more than 2,000,000 tons over 1921.

But all prognostications as to the prospects for larger production, maintenance of price level or other features of the trade during 1923 must be considered with due regard to eventualities and subject to contingencies which may arise.

If, for instance, the country next spring witnesses another bitter conflict over wage scales in the mining regions—toward which the present attitude and thoughts of both interested parties very plainly trend—all the skill of the union leaders and all the resources of their organization will be utilized for a desperate assault on this stronghold of the open-shop mine. In that case the coke operators will have before them the discouraging prospect of 1923 being the year in which "the worst is yet to come." And later they may have on their hands the stiffest fight of their existence.

In the happy, but admittedly uncertain, chance that the wage scales in the Central Competitive and other fields will be adjusted by application of the rule of reason, not resort to force, and without disturbing conditions in the coke region, the latter will be destined to enjoy during 1923 what, in such event, promises to be a year of more evenly distributed demand, fair prices and more stable conditions in the trade than have prevailed since the World War set business and industry topsy-turvy.

MARKET REVIEWS

Markets and Production in 1922 and Forecasts by Our Correspondents in Leading Cities and Coal Fields—Diagrams and Tables of Spot Prices of Coal and Operating Records of Producing Districts

New England Bituminous Conditions in 1922

Trend Toward Water Route Further Confirmed—Receipts of British Coal a Factor in Year's Trade—Future Railroad Supply and Opening for Pennsylvania Grades Hold Interest for 1923

BY G. G. WOLKINS

A NOTABLE increase in the volume of water-borne coal was an outstanding characteristic of bituminous in New England during the year just ended. Due in large part to a continuing disparity of rates that checks the flow of coal all-rail, another very considerable factor was non-union labor in the West Virginia smokeless fields. These features together have again indicated to Pennsylvania producers the handicaps under which they operate with special reference to Eastern territory and in seasons when conditions are reasonably near normal. As at the beginning of 1922 the Pocahontas and New River interests know that if Pennsylvania mine labor adheres to a wartime scale they need have little anxiety over competition from that quarter. So long as the through tariff remains so much to the disadvantage of Pennsylvania shippers the latter must content themselves with less representation in areas easily accessible from Tidewater.

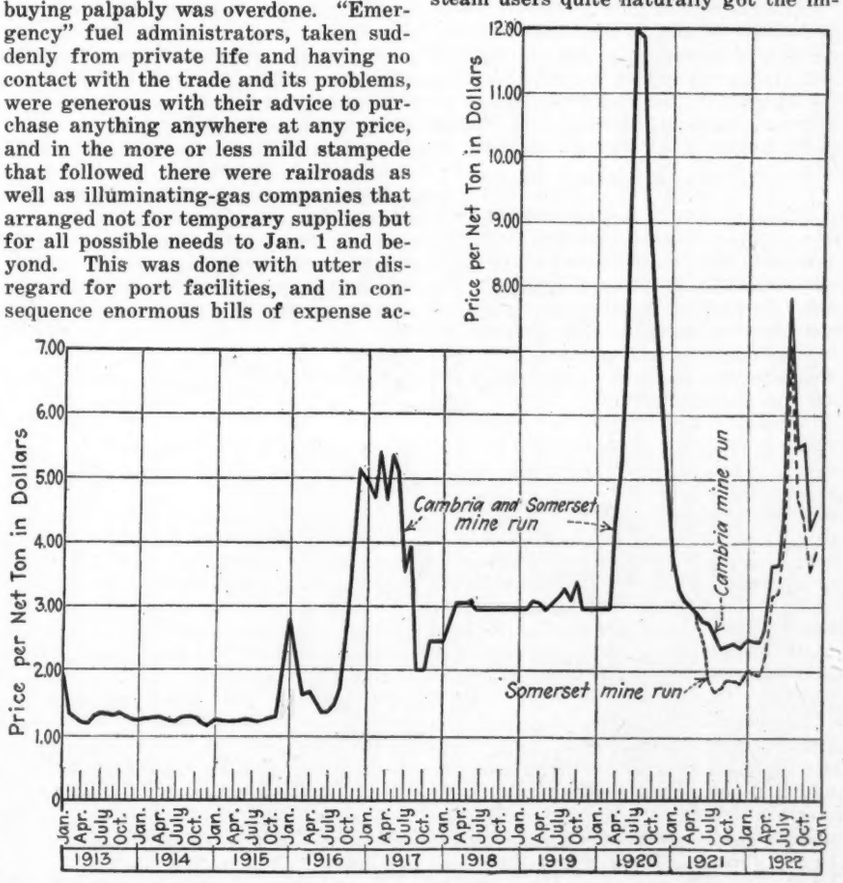
Throughout the year reserves were ample with most of the large consumers. Railroads, utilities and the industries pursued a generally conservative policy until July, when there developed within a very few days one of the worst scares New England buyers have experienced.

A protracted strike of cotton-mill operatives, effective from early in February, together with continued depression in most lines of manufacture, led steam users to agree that 80-90 per cent output in the Pocahontas field would yield enough coal easily to carry the situation. And so it turned out during the spring months, and doubtless would have continued through the summer but for the deplorable breakdown of equipment on the Norfolk & Western.

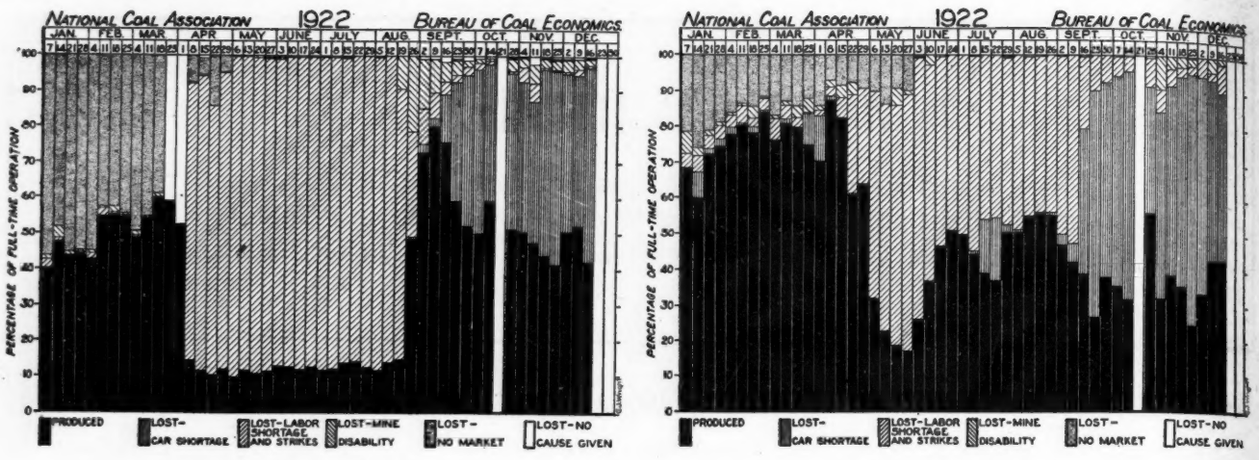
To meet pressing requirements that were at least threatening, the Pennsylvania districts had little to offer. There was an attempt, under government auspices, to put into effect some form of legalized discrimination in the distribution of cars among mines then in operation. The influence of the administration also was exerted to raise the non-union wage to the union peak scale, but while politicians were fanning the air the trade itself showed its usual resourcefulness under hard conditions. Very much as in 1903, when certain interests felt they could be the only possible avenues of supply, ships began loading at English and Welsh ports with such increasing frequency that between June and November the port of Boston alone received upward of a round million tons of British coal for steam purposes.

The scare was so great that foreign buying palpably was overdone. "Emergency" fuel administrators, taken suddenly from private life and having no contact with the trade and its problems, were generous with their advice to purchase anything anywhere at any price, and in the more or less mild stampede that followed there were railroads as well as illuminating-gas companies that arranged not for temporary supplies but for all possible needs to Jan. 1 and beyond. This was done with utter disregard for port facilities, and in consequence enormous bills of expense accrued through delays of five and six weeks in handling cargoes. It was a bubble that soon burst, and probably not for another cycle of years will certain buyers repeat their costly experience.

During most of the autumn reputable shippers, both all-rail and by water, in all districts, were obliged to mark time because this territory was almost buried under the avalanche of British coal. The let-down for a fortnight or so in July on some of the originating roads, because of the shopmen's strike, was enough to deprive mine owners of a market they had a right to count on when the strike issue was finally settled late in August. Political gestures at first had the effect of postponing buying, but as the July situation developed, so heavy a hand was laid upon available supply, chiefly in the interest of feverish railroad buyers, that New England steam users quite naturally got the im-



SPOT PRICES F.O.B. MINES ON THE BOSTON MARKET OF MINE-RUN COAL FROM CAMBRIA, CLEARFIELD AND SOMERSET COUNTIES, PENNSYLVANIA



Central Pennsylvania Somerset County, Pa.

PERCENTAGE OF FULL-TIME OPERATION OF COAL MINES AND TIME LOST BY CAUSES

pression they would have no standing whatever until the big carriers serving New York had had their wildest claims recognized.

Fuel oil of itself has now supplanted coal to an extent that makes the market for the latter rather less responsive, in general, than it was in years when oil was not such a factor. Unofficial figures point to oil importations at the port of Boston during the twelve months ended Dec. 21, 1922, that were the equivalent of 4,250,000 net tons of bituminous coal, or an equivalent increase of more than 500,000 net tons over figures for 1921. If to this be added the rising 1,000,000 gross tons received from British ports, it will be readily understood that suspension of mining in a large number of bituminous areas does not now have the significance it once had when this territory was regularly absorbing 18,000,000 to 20,000,000 gross tons annually.

An Unsatisfactory Year

Except for special situations in July and in December, the market tone was sluggish, and for three- and four-month periods shippers were obliged to lay siege to buyers in order to move any considerable tonnage. The dullness inherited from the previous year extended well through April, and was again recurrent during September, October and November. Not in several years has there been a season when relatively so little contract tonnage from the Pennsylvania districts was placed in this territory, and until the end of the year it took unremitting toil to obtain business enough to keep this or that mine in operation. Of the Hampton Roads coals a fair volume was placed on contract, but 75 to 90 per cent of it must have been through regular channels that have subsisted each year since the war.

The year opened with large reserves and low coastwise freights. The scarcity of orders forced both steam tonnage and large sailing vessels to take charters at 85c. and less, Norfolk to Boston, and for several weeks the agencies tried to capitalize what strike talk there was by naming delivered prices for February and March, hoping thereby to induce greater output in the smokeless districts. Quotations f.o.b. vessel at the Virginia terminals ranged $4.50@$4.80 per gross ton, and for delivery inland from Boston and Providence there were competitive bids $6.15@$6.35 on cars, also per gross ton. While moderate buying developed late in February, industries were really in no better shape and were taking coal only to be on the safe side.

In spite of numbers of New River operations closed by unions the market continued extremely quiet during April. There were non-union Pennsylvania mines unaffected by the strike, and it was not until May that any tightening at the sources of supply began in the least to affect prices at re-handling points, while advances f.o.b. were very gradual. Smokeless coals had been absorbed here to the point of saturation, sales being made at $5.75 on cars Boston at a time when $5.35 was being quoted f.o.b. Norfolk.

Long-term contracts were being made at retail in Boston for $7 flat per net ton as late as May 10, and one would never have supposed a big strike in effect at both anthracite and bituminous mines. It was not until the end of May that firmer prices at Hampton Roads began to be reflected here. As it was, quotations in June rose more rapidly than in two years; distress coal was soon cleaned up, and in a single day f.o.b. prices soared from $5.90 to $6.50, on-car figures having been pushed up to $8.50 at Boston.

"Fair-price" negotiations at Washington slackened demand for a time; stocks were heavy enough to justify delayed buying, and available coal at Norfolk and Newport News grew so much in volume that the market bore every appearance of suffering more from buyers' strike than idleness at the mines. Throughout June pier accumulations ruled more than 250,000 tons, buyers were influenced by news items from Washington and by the certainty of a 10 per cent reduction in railroad coals; prices had no stability, and while $7.50 @$8 was "asked," $6 would have been accepted.

The striking shopmen, however, upset the market. The slump in service on the Southern roads rapidly made itself felt in much reduced accumulations at the piers. On July 15 only 26,000 tons of Navy standard grade was available. The great bulk of contract coal was effectually cut off, and it was known that upward of 500,000 tons of British coal had already been arranged for. Prices here rose to $13 on cars, but there was so little free coal that buyers were not much interested. Contrary to government policy in 1917 and 1918, when contractors were deprived of their purchases in order that coal might go elsewhere on a lower price basis, they now saw their coal enticed in other directions by government order on a much higher figure. Coal properly belonging to New England was sent to the Middle Atlantic states for locomotive use at extremely high prices, and it was only natural that buyers here should seek to protect themselves by covering all the foreign coal that could readily be brought over seas.

The strike over, less tonnage from Hampton Roads to the railroads serving New York, a cessation of such glaring cross-hauls as sending N. & W. cars to New England, and a $1 a ton wage increase in the non-union smokeless mines combined to ease the situation materially. Hampton Roads prices dropped to $8.25, by late September the smokeless agencies were working hard to plug holes, and there was in prospect little improvement in a very inactive market. It was not until December, when car shortages were in excess of 50 per cent that values were again enhanced and an $8 level reached on Navy standard coals at Hampton Roads.

Several large cotton mills that had

SPOT PRICES, F.O.B. MINES, OF BITUMINOUS MINE RUN COAL FROM CAMBRIA, CLEARFIELD AND SOMERSET COUNTIES, PA., BY MONTHS, 1922, QUOTED ON BOSTON, MASS., MARKET

	Cambria	Clearfield	Somerset
January	$2.47	$1.82	$2.01
February	2.45	1.90	1.95
March	2.45	1.90	1.95
April	2.64	2.24	2.21
May	3.63	3.38	3.18
June	3.64	3.25	3.20
July	4.40	4.08	4.00
August	7.75	7.37	7.09
September	5.44	4.99	4.71
October	5.52	4.22	4.32
November	4.20	3.82	3.57
December	4.49	4.05	3.87

been contending practically all the year with disaffected operatives finally resumed, and this together with a general industrial reaction brought back in a restricted sense the buying power the trade so greatly needed. The shortage of anthracite induced a continued active demand for prepared sizes, especially in the West, and at this writing the lack of motive power is serious enough to cause higher prices for weeks to come.

Railroad Fuel

In many directions the New England carriers renewed contract arrangements of other years, but suspended mining obliged them to seek relief in other quarters. Late in March the largest railroad user in this section made a considerable purchase of Kanawha at $5.39, alongside, for extended delivery, but until July the railroads, as others, bought only sparingly. They were among the first, however, to purchase British coal, and much of the high cost of receiving it here was due to their insistence upon prompt dispatch from the other side.

There is little question that certain of our own engine fuel has been permanently supplanted, at least so long as American coal can command in excess of $3 per net ton at mines and ocean freights are on anything like their present low level. There have been the usual discussions involving assigned cars for supply coal, but during November and December the railroads were in strong position to carry through their own program. Their reserves of British coal are quite sufficient to enable them to dicker with operators, and it is probable that another season will see new alignments with respect to railroad fuel in New England.

In general, much less coal has been received via the Hudson River gateways than in previous periods. There were three weeks in May when in the aggregate less than 100 cars of bituminous passed the transfer points for New England, and it will be of interest to the trade to see whether in 1923 the roads will make really serious efforts to cover as large a tonnage abroad as they saw fit to take last year.

Because of conditions already indicated, the output of even choice mines in central Pennsylvania figured much less than usual in the fuel problems of New England. Only when Hampton Roads coals failed in supply was there outlet here for more than the relatively small tonnage needed in the narrow strip of consuming territory west of the Connecticut River, and indeed for much of that section there was provision during most of 1922 for ample supplies of Pocahontas and New River via rehandling wharves at New Haven and Bridgeport. It was a year that enabled New England to do very little for overburdened operators who are obliged under existing circumstances to rely mainly upon Eastern markets and the all-rail route.

Early in the year the range of Clearfield quotations was barely in excess of $1.75 per net ton at the mines, with the most favorably known Cambrias at less than $1 more. There was simply no reaction to strike prospects, and attempts were unavailing to open central Pennsylvania operations that had been shut down for several months through lack of business.

Until rail facilities were so obviously crippled that certain shippers felt obliged to turn to the water route, there was little tonnage moving to New England over the Philadelphia and New York piers. The high cost of mining put many of them out of competition with Hampton Roads shipments except in special instances, and it was late December when certain high-volatile producers began to send coal here from Philadelphia terminals.

When mining was resumed in the union districts in August, prices on the output of mines not organized dropped rapidly from the $7@$8 level. During October and November inquiry was slow. The approaching cold weather had its influence none the less on householders who ordinarily rely upon anthracite, and from that direction there was soon in evidence a broadening demand through retail dealers for the desirable low volatiles.

Late in December erratic car supply made itself increasingly felt. As usual, many operators were so eager to sell when business offered that their obligations for spot shipment were much heavier than car service would warrant, and operators are renewing their customary unfavorable reputation for filling orders.

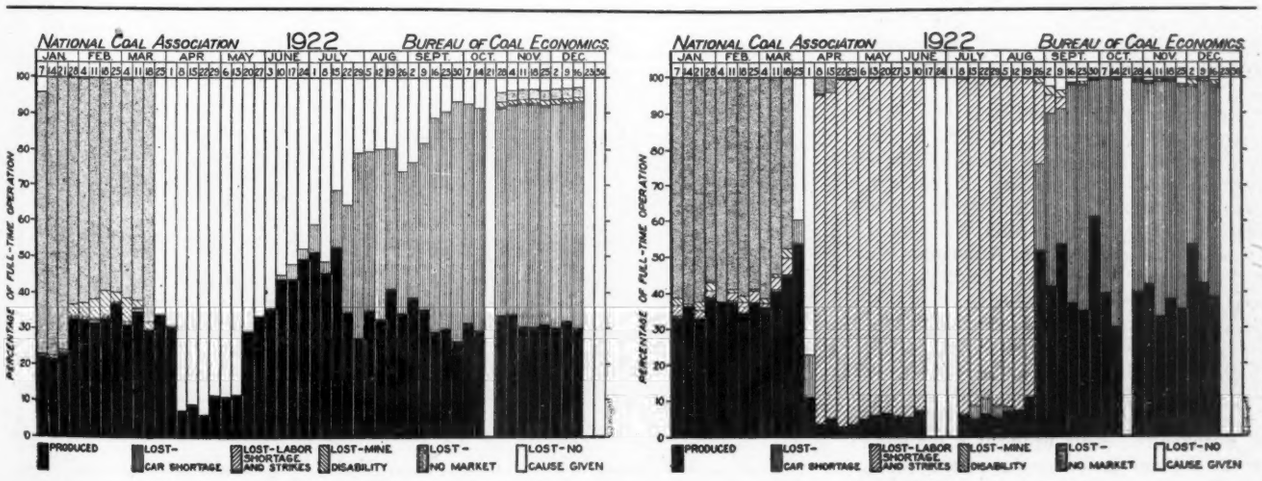
Hardening Prices as the Year Ends

Movement all-rail and by water slowed up materially in the holiday season. Not only were delays frequent in clearing coastwise transportation, together with much adverse weather in transit, but the hiatus in mining was enough to bunch cars on all the originating roads and to create further eccentricities in delivery throughout January. The natural consequence is a general leveling up in prices. Purchases that were withheld when the swing upward first began were now heard from, and there was more anxiety over covering coal for the first months of the new year than was apparent on the surface.

On the last business day of December a sale of Pool 1 Navy Standard was rumored at $9.25 per gross ton f.o.b. vessel at Norfolk, a figure that had not been reached since panic days in August. With the reduction in tolls July 1 from $2.80 to $2.52 this would leave the return to the operator $6.73 (commission included), a reasonably remunerative figure f.o.b. mines for a Pocahontas operator!

The New Year

A forecast at this writing is unusually difficult. The railroad-rate problem still presses for solution, and the inherent absurdities of the present tariff basis were never so blatant as during the heavy movement of British coal to the Atlantic seaboard during the summer and autumn of 1922, much of it arriving when American shippers were diligently seeking business. There are signs that both mine owners and workers will avoid the wasteful expedients resorted to last season, and possibly, with promise of expanding business in other lines, the bituminous trade will take to itself new courage and begin to outgrow the unpopularity of its calling. That would be an ambitious program!



New River Field Fairmont Region

PERCENTAGE OF FULL-TIME OPERATION OF COAL MINES AND TIME LOST BY CAUSES

Year of Ups and Downs in New York Market

Acute Domestic Situation Caused Formation of Fuel Administration—Quantities Restricted and Substitutes Prescribed—Suspend Smoke Ordinance to Permit Use of Bituminous

THE past year ended with conditions quite the reverse of what they were at the beginning. With more than sufficient coal on hand in January to meet all requirements, dealers closed the year 1922 with scarcely any anthracite in their yards, unless it was buckwheat and the smaller sizes.

The five months' suspension of operations in the hard-coal fields left the metropolitan area nearly 3,000,000 tons, or about 40 per cent, short of its usual tonnage to meet ordinary demands. This shortage would have caused untold suffering had not the use of substitutes—buckwheat, bituminous or coke—been made compulsory, if any of the domestic coals were to be obtained from retail dealers.

There was not much activity in January. With more than enough coal at the terminals to meet demands operators and shippers, in order to save car charges, dumped the coal into boats. Prices quoted for independent coals were slightly below company schedules. Toward the middle of the month, however, owing to changed weather conditions, the situation improved. Stove and chestnut, as well as the steam sizes, were hard to move.

There was a temporary spurt in buying following the warning of Secretary Hoover of possible labor trouble in the mines. The public paid little attention, however, and there was little difference in the situation during the next couple of months. The steam-coal situation, however, caused considerable concern to operators and shippers. Bids asked by the city for supplying a large tonnage of buckwheat No. 1 brought responses ranging $5.53@$6.53. In anticipation of the impending trouble many washeries which had been closed down because of the lack of demand reopened and their product was stored unless it could be disposed of otherwise.

From April until the resumption of mining in September the situation was in the hands of the consumers. Operators and wholesale dealers had nothing to sell, unless it might be pea coal and the steam sizes.

Governor Miller, realizing the seriousness of conditions, named a fuel commission to make a survey of the situation, of the amount of coal on hand and report to him. As a result of this report he appointed William H. Woodin, president of the American Car & Foundry Co., as State Fuel Administrator. Deputy administrators as well as an executive force were appointed and offices were opened in this city. An examination of supplies of coal on hand within the city limits showed a total of about 47.000 tons of all sizes of anthracite. This brought a warning to coal users to burn bituminous coal, which was coming to market in fairly good volume by this time.

When the mines resumed operations, Sept. 11, local yards were bare of domestic coals. Thirty-six hours after operations had been started thirty cars of coal arrived at Perth Amboy, and other shipments followed in quick succession. However, with other parts of the country in no better shape than New York this district was able to obtain only its proportionate share of the output, allotted to it by the Federal Fuel Administration.

The domestic coals were quickly taken, but, because of mild weather conditions, there was no demand for the steam coals and these soon piled up at the terminals. With demand becoming slower for these coals many washeries were forced to close down and the steam-coal problem became one of considerable moment to producers.

In October the domestic situation became so serious that the Fuel Administration officials issued orders restricting consumers to not more than a thirty-day supply and at the same time fixed the price for peddler coal at 85c. per 100 lb. at the cellar or peddlers' bin.

With winter closing in the demand for coal increased and several dealers suggested the forcing of the use of substitutes if the supply of anthracite domestic was to be conserved. This suggestion, however, was not made an order until early in December, when dealers were directed not to deliver domestic coals to consumers unless preceded or accompanied by 25 per cent of some substitute.

Soon after Dec. 15 shipments were increased because of the suspension of Lake navigation. Earlier in the month, because of the decision of the United States Supreme Court upholding the constitutionality of the Pennsylvania state tax law, several of the operating companies and larger independent operators advanced their price schedules 10c.@30c. on the various sizes, but this advance was not reflected in the retail prices, which showed considerable variation because of the range of quotations of the companies and independent operators.

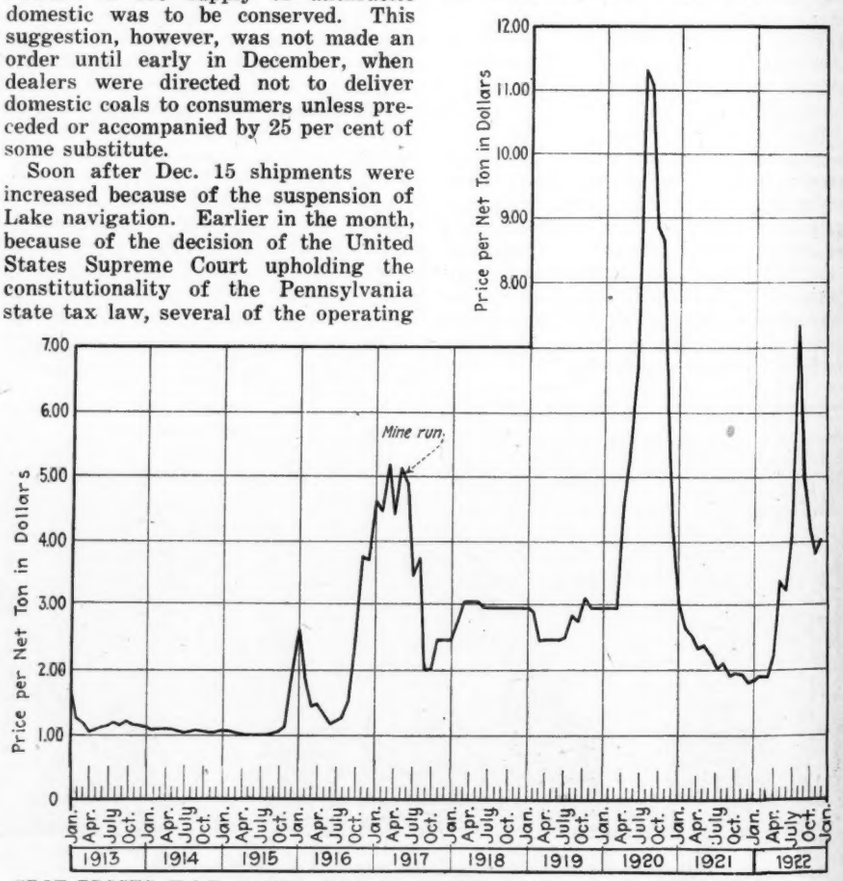
A comparison of retail prices in Manhattan before and after the so-called suspension in the anthracite fields is given on the next page.

There were many ups and downs in the bituminous situation during the year. Because of the strike stocks ran low and British coal was brought to these shores. Southern coals, which have nearly always been brought to this market in comparatively small quantities, were shipped here in much larger volume.

Because of the lack of anthracite in the last few months of 1922 bituminous was named by the State Fuel Admin-

SPOT PRICES, F.O.B. MINES, OF BITUMINOUS COAL, FROM FAIRMONT DISTRICT, BY MONTHS, 1922
AVERAGE OF QUOTATIONS ON THE PHILADELPHIA, NEW YORK AND BALTIMORE MARKETS

	Mine-Run
January	$1.53
February	1.50
March	1.47
April	1.73
May	2.82
June	...
July	6.27
August	7.05
September	4.64
October	3.85
November	3.50
December	3.42



SPOT PRICES, F.O.B. MINES, ON THE BOSTON MARKET OF MINE-RUN COAL FROM THE CLEARFIELD DISTRICT OF PENNSYLVANIA

COMPARISON OF RETAIL PRICES IN MANHATTAN BEFORE AND AFTER SUSPENSION IN ANTHRACITE FIELDS

	April, 1905	July, 1906	December, 1906	April, 1907	Oct., 1913	September, 1915	March, 1922	September, 1922	December, 1922*
Broken	$5.85	$6.05	$6.50	$6.00	$6.75	$7.00	$12.85	$13.25	$13.50–$14.75
Egg	5.85	6.05	6.50	6.00	6.75	7.00	12.85	13.25	13.50– 14.75
Stove	5.85	6.05	6.50	6.00	6.75	7.00	13.10	13.25	13.50– 14.75
Chestnut	5.85	6.05	6.50	6.00	7.00	7.25	13.10	13.25	13.50– 14.75
Pea	4.50	4.50	4.75	5.00	5.00	5.25	10.75	10.75	10.50– 11.25
Buckwheat	3.50	4.00	3.50	3.50	3.75	3.90	7.65	8.20	.....
Rice	3.00	3.00	3.00	3.00	3.15	3.15	6.75	7.20	.....
Barley	.....	.....	.....	.....	.....	.....	5.75	6.20	.....

*Quotations from two of the largest dealers in Manhattan. Smaller dealers may be asking higher prices, depending upon the tonnage obtained from independent operators.

istrator as one of the substitutes to be used, and for the first time it began to figure as a household fuel in New York City. Bituminous screened coals of stove and chestnut sizes became so popular that they could not be furnished in sufficient quantities. Quotations ranged $6@$7 at point of loading, taking the Pittsburgh or Westmoreland freight rates.

There was a lack of supplies at this tidewater at the beginning of 1922, the average number of cars at the local terminals running close to 800 as compared with about 2,000 in normal times. However, there was little business and few inquiries regarding contracts. Harbor boatmen were on strike and there was already some talk of mine workers negotiating a new wage agreement. Quotations at this tidewater early in January ranged something like these: Pool 1, $2.75@$3.25; Pool 9, $2.15@$2.30; Pool 10, $1.80@$2.10.

The first arrival of British coal occurred during the first week in August. It was consigned to a public-utility corporation but its use was not entirely satisfactory. A survey of local stocks by the Board of Health Inspector showed about 14,339 tons of bituminous on hand within the city limits. The smoke ordinance was suspended. British coal was arriving at the rate of about 100,000 tons weekly.

A falling off in inquiries for British coal occurred early in September following the resumption of mining. Car supply was bad, but there was plenty of coal available to meet all demands. Foreign coals were being offered here at about $7.50, alongside. There was, however, no improvement in demand.

Similar conditions existed throughout October. November showed comparatively little change from the preceding month. Buyers did not appear to be greatly interested, car service continued poor and high-grade coals were quickly absorbed.

Rapid changes occurred in December. Quotations advanced rapidly and at the end of the month showed increases of from $1.50@$2 on nearly all grades. Most of this was attributed to poor car supply, resulting in greater demand. There was, however, a slight drop in quotations the first of the new year.

Screened coal grew rapidly in favor during the month and operators found themselves loaded with orders. The use of bituminous coal for heating purposes also became more general.

Baltimore Feels Few Regrets at Passing of 1922

Many Cases of Actual Loss for Operators, Agents and Distributors—Strike Caused Closing of Some Yards—Water-Borne Fuel an Interesting Feature of the Industry

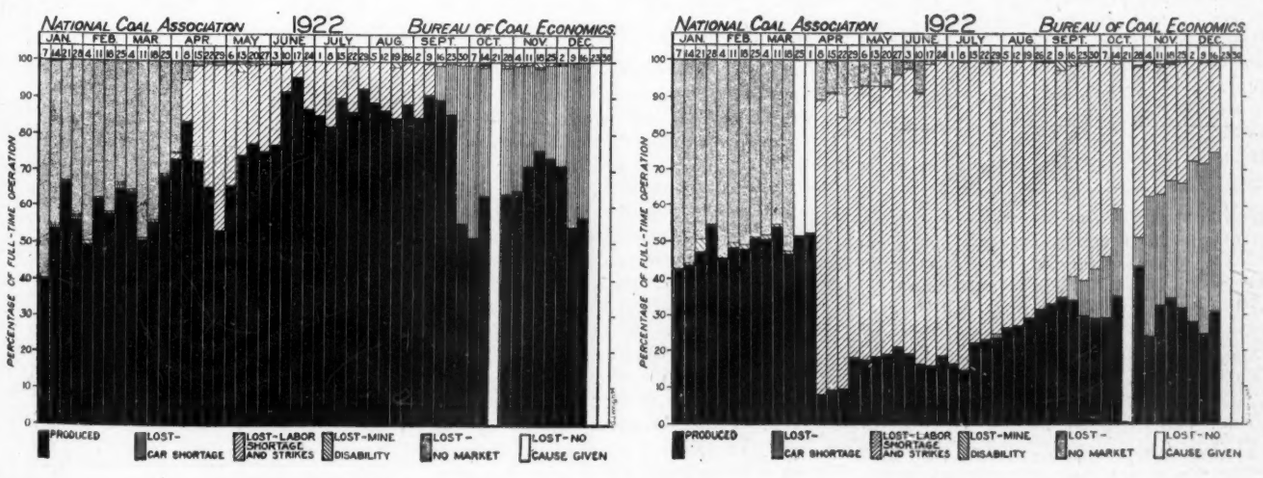
BY WALTER R. HOUGH

THERE will be little regret in the thoughts or feelings of coal men in the Baltimore district over the passing of the year 1922. It was a year of trials and tribulations, uncertainties and vexations and in many cases of actual loss for operators, agents and distributors.

Bituminous trading in January was of an encouraging nature with price of both line and bunker coals advancing, although the bunker trading was the better feature of the two. Best steam coals ranged $2.25@$2.40, with less desirable coals down to $2. Gas lump, Pennsylvania, was quoted at $2.40, with West Virginia selling down to $1.85. Hard-coal dealers were busy on small orders, with plenty of coal running, fair stocks in yards and little thought of the troubles to come.

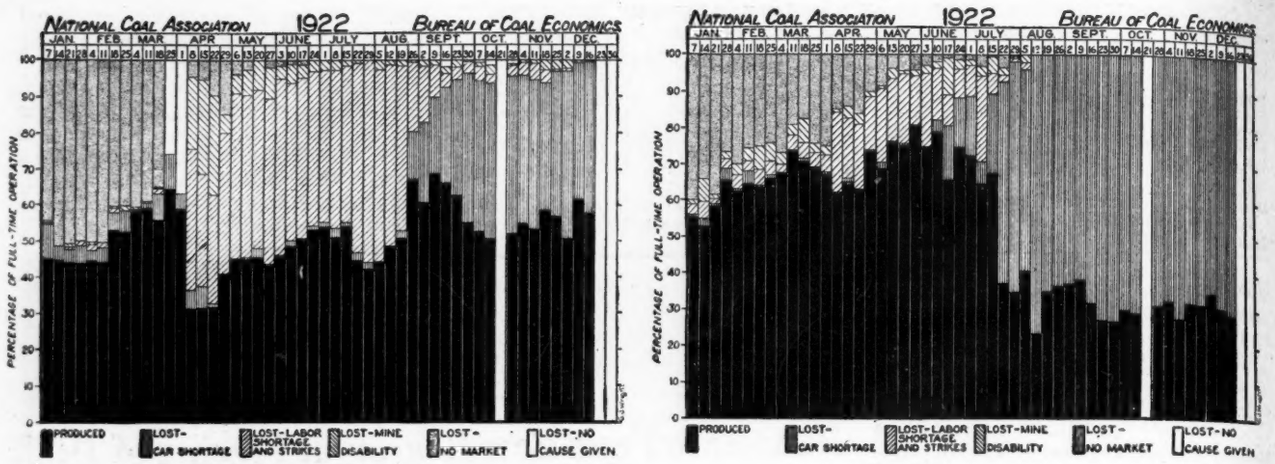
In March coal men began to study the coming strike situation and urge consumers to lay in stocks in order to make conditions better latter on, but the refusal of the public to buy soft coal in quantity made the price situation weaker for all lines of bituminous, and in this the waning export movement had a considerable weight. The hard-coal men at this time faced an odd situation. An extremely mild end to the winter with strike prospects for April left the dealers between the horns of two dilemmas. On the one hand some of the dealers had stocks left over, which, acquired at high prices, threatened serious losses if the strike failed to materialize. Others, who had kept close to actual needs, did not know whether to attempt to stock for the future or stand pat.

The strike went in with such little noise that the public failed to realize its import and many coal men thought that it would soon be over. By mid-April, however, reports of the closing of several non-union mines and the lessening run of soft coal began to send prices upward. Early in May steam coals of Pools 9 and 71 were quickly absorbed at $3.50@$4. Gas coals of better grades sold up to $4 and Fairmont lump was up to $4.50. The scarcity of bunker coals was such that shipping of coal to Baltimore on barges from Hamp-



Westmoreland District Cumberland-Piedmont District

PERCENTAGE OF FULL-TIME OPERATION OF COAL MINES AND TIME LOST BY CAUSES



Panhandle District, W. Va. Winding Gulf, W. Va.

PERCENTAGE OF FULL-TIME OPERATION OF COAL MINES AND TIME LOST BY CAUSES

ton Roads began, and this was taken over at $5.50@$6 gross, alongside.

In June results were shown from the Hoover conference, and a number of shippers who had been expected to sell around $4@$5 let go of their holdings suddenly and prices even for better grades of steam coal dropped to around $3. This did not last, however, for before the end of the month practically all of the regions, with the exception of the Southern fields, were selling from good to best coals at $3.50@$4, while Hampton Roads was disposing of New River and Pocahontas coals at $3.25@$3.50, thus holding within the Hoover range. A number of yards were closed during the month because of a lack of anthracite supplies. Not more than ten or twelve in Baltimore had any substantial reserve.

August brought a state coal distribution commission and a questionnaire on supplies in industrial bins, a sharp advance in prices of soft coal and a tremendous drop in the amount of deliveries. Anthracite dealers took up the question of substitutes, and urged customers to lay in stocks of bituminous. Small lots of bunker coals continued to come from Hampton Roads and some English importations began.

The end of the bituminous strike sent an increased tonnage into the market. Prices did not slump at once, good grade steam coal holding firm at $6@$6.50 and less desirable fuels around $5. By the end of September, however, quotations for best steam grades were $5.25@$5.75; for intermediate coals, $4.75@$5, and poorer grades around $4.25.

SPOT PRICES, F.O.B. MINES, OF BITUMINOUS COAL FROM POCAHONTAS REGION, BY MONTHS, 1922

AVERAGE OF QUOTATIONS ON BOSTON, CHICAGO, CINCINNATI AND COLUMBUS MARKETS

	Mine-Run
January	$1.71
February	1.66
March	1.60
April	1.67
May	3.02
June	3.05
July	3.98
August	5.96
September	5.21
October	5.13
November	4.44
December	4.82

During the early days of the month a number of hard-coal dealers took considerable quantities of Welsh coals, which they sold at $13.50@$14.50 delivered to homes. The first receipts of anthracite came to hand from independent sources and while there was no set price arrangement through the Baltimore Exchange, No. 1 was generally sold around $15.75; Nos. 2, 3 and 4 at $16; Sunbury, $16.50, and Lykens Valley, $17.

Heavy arrivals of British coals during September and early October had their effect on the October market. Hard-coal dealers began to receive a more liberal run of anthracite, and there was general hope that November and December would bring liberal runs; a hope which was badly blasted later. Early November found a peculiar situation in the soft-coal trading here, there being a steady decline in price in view of the light call from large industries.

The last month of the year brought new strength to the soft-coal trading at Baltimore. Many large industries got actively into the buying and prices went up sharply. Hard-coal dealers were complaining bitterly that December had fallen back even of the light shipments of November. Really cold weather and snow had increased the urgent demand and householders began active buying of substitutes.

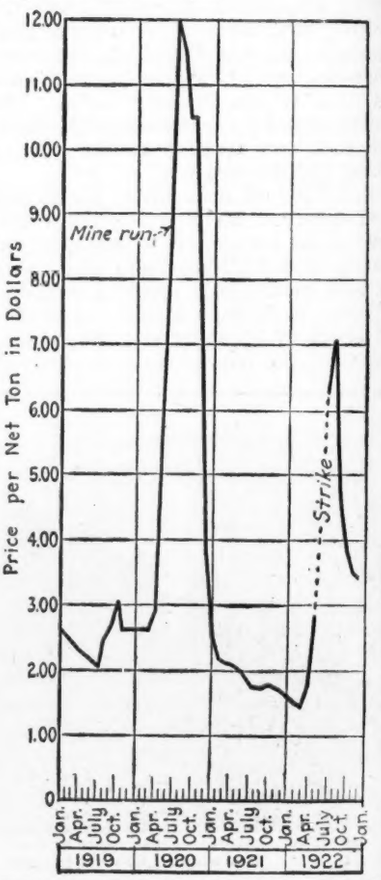
The subject of water-borne coal at Baltimore is interesting, especially when comparisons are made with former years. Possibly the most striking development was that the importation of coal from the British mines during three months of the year surpassed by 13,711 tons the total amount of the export cargoes tabulated to Dec. 18.

With Europe oversold on American coal, at least, 1922 opened with an extremely small demand for the fuel from this side. Just as the trade was beginning to show a tendency to return to normal, and March of 1922 had registered an increase in the business which made it the largest month since October, 1921, the miners of this country called a strike and exporting was discontinued after April 10.

While the period of the importation of British coal to Baltimore was of but short duration, dating from Aug. 25 to Oct. 28, it was extremely lively, particularly that portion of the trade covering the month of September.

The number of ships engaged in the trade and the amount brought here each month was: August, 1 ship, 6,694 tons; Setember, 14 ships, 79,895 tons; October, 4 ships, 26,595 tons.

With the beginning of the strike the New England coal trade from Baltimore began gradually to reduce until it was discontinued after a few weeks. It has been renewed, however, and a considerable volume of business is now being done in this line.



AVERAGE SPOT PRICE, F.O.B. MINES ON PHILADELPHIA, NEW YORK AND BALTIMORE MARKETS OF MINE-RUN COAL FROM FAIRMONT DISTRICT

Most Unsatisfactory Year in Philadelphia

Few Found Cause for Enthusiasm—After Watchfully Waiting for Lower Prices Consumer Paid More — Rate Cut Had Little Effect—Anthracite Tax Important Enactment

By W. D. Hammer

FROM beginning to end 1922 was a most unsatisfactory year to everyone in the trade. The operators, with over five months' idleness to contend with, had little chance to show a profit on their undertaking, including both bituminous and anthracite. In anthracite the retailer, being unable to do business for the lack of stock during most of the summer months, also put in an unprofitable twelve-month, and the consumer, always eager and watchful for lower prices, in the long run actually had to pay more than ever for fuel.

In the anthracite trade the year opened with plenty of all sizes of coal in the dealers' yards, and a winter which was close to mild at all times retarded buying, as even in the very beginning consumers were afraid to buy in volume lest they have something left over on April 1, when they felt certain there would be a general reduction in miners' wages, with a consequent decrease in retail prices.

It is worth while recording the mine prices at the beginning of the year, which were as follows:

Company—Egg, $7.75; stove and nut, $8@$8.10; and pea, $6@$6.25. Independent—Egg, $7.75; stove and nut, $8.10@$8.25; pea, $5@$5.50.

With very little coal coming in from April 1 onward, except from storage yards, the retail yards began gradually to show shrinkages in their stock, and when Aug. 1 was reached very little coal of any size was left but pea coal. It should be remembered that the companies had heavy stocks of pea on hand, but this did not begin to move until July 1, and they were anxious for business from anyone on this size.

During August Governor Sproul appointed a fuel commission to supervise the distribution and prices of coal, as with no production during the entire spring and summer it was easy to foresee difficulties when production did begin.

Coal began to arrive in the city soon after the resumption of work, although there was no particularly strong demand for it from consumers. For a while prices were an uncertain quantity, as the companies had not decided on their schedule and shipped upon the stipulation that price would be arranged later. Quite a number of the independents started with a price of $9.50 for egg, stove and nut and $7 for pea, shading down to one independent with a low price of $8.50 for the large sizes and $7 for pea. Later this was followed by company prices ranging $8.10@$8.35 for egg, stove and nut, and $6.15@$6.20 for pea. In October the fair-practice committee of the State Fuel Administration adjusted independent prices to $9.25 for the large sizes, and a few independents kept on with $9.50, and all with pea at the old figure of $7.

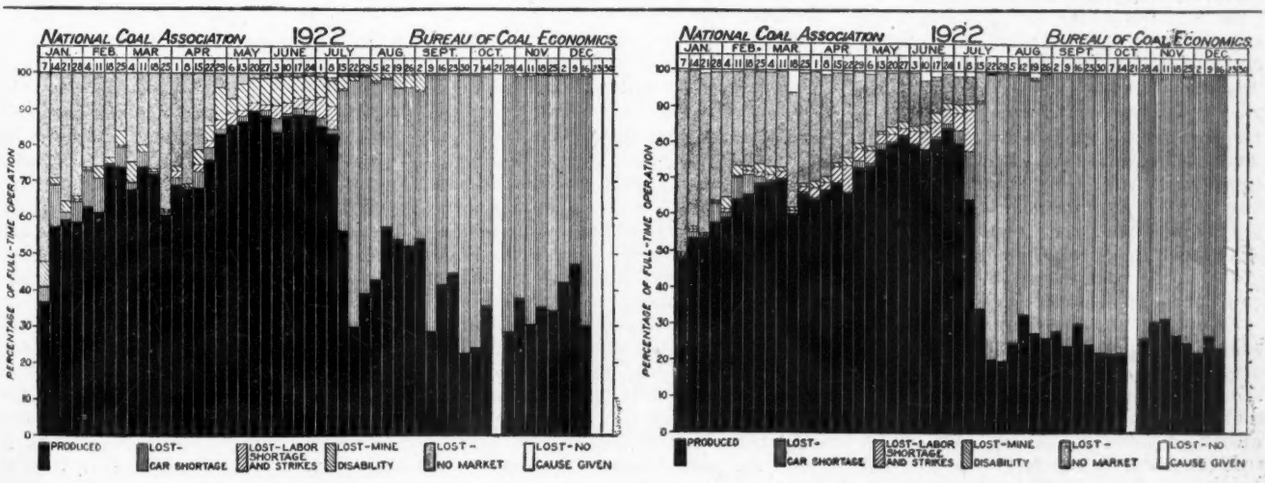
Within less than a month a number of independents claiming to be unable to do a profitable business at the above prices, began to make advances, and upon request of the fair practice committee were invited to present their cost sheets to them. As a result of this investigation advances in some instances of $1 a ton were allowed bringing certain independent prices to $10.50@$11 for the large sizes and $8 for pea. The lowest independent prices for the balance of the year were $9.25 for family coal and $7 for pea.

The steam-coal market started off strongly in the winter of 1921-22 and and was going well in January, with the companies selling practically all of their production at $3.50 for buckwheat, $2.50 for rice and $1.50 for barley, with the independents at times able to get a premium on these figures. However, it was another story later on. In February the independents were glad to get $3 for buckwheat, $2.25 for rice and $1.25 for barley, with the companies maintaining their schedule, but dumping much coal in the storage yards. With the approach of the strike, steam coals stiffened and independents obtained $3.50 for buckwheat. As the company storage piles began to melt away river barley came on the market in June at $1.60@$2.25, and fairly well maintained these prices until fresh-mined coal arrived again in September, when it faded out of sight. The new company prices on steam coals were: Buckwheat, $4; rice, $2.75; barley, $2, while the independents tried to get $1 above these prices, which they did for a short time, but prices weakened in October and much independent coal sold at 25c.@75c. less than company prices.

The state tax act was always a subject of great interest and even after its validity during the summer was affirmed by the state courts the dealers thought it would be finally quashed. Nevertheless in November the U. S. Supreme Court upheld the act, and while it was thought that the tax might be added to the coal price, no company made a specific charge for it.

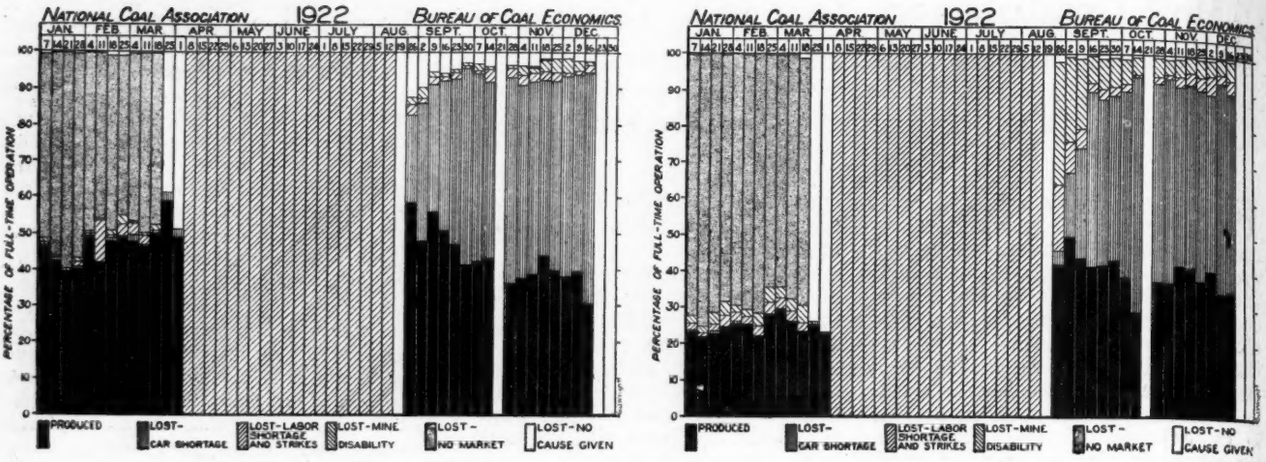
As the year came to a close the retail dealers in this vicinity found the greatest difficulty in getting enough coal to supply the needs of their customers, and they were compelled to resort to various substitute fuels to keep the people warm. Dealers generally stocked up with bituminous coal, coke and anthracite buckwheat, but it was only with the greatest difficulty that the people would take them, and only then under stress of much colder weather later in December.

In the bituminous trade the entire year seemed to have been spent by the consumer in jockeying for lower prices, despite many and serious issues such as rail and miners' strikes crowding to the front, which ordinarily would have spurred the consumer to take steps to accumulate reserves of coal. Despite low prices at the beginning of the year, such as $2.70@$3.10 for Pool 1; $2.30@$2.80 for Pool 9; $2@$2.25 for Pool 10, and $1.65@$1.80 for Pool 11, the consumer as a general thing simply re-



Tug River District, W. Va. Logan District, W. Va.

PERCENTAGE OF FULL-TIME OPERATION OF COAL MINES AND TIME LOST BY CAUSES



Northern and Central Ohio Districts — Southern Ohio District

PERCENTAGE OF FULL-TIME OPERATION OF COAL MINES AND TIME LOST BY CAUSES

fused to buy for more than current needs.

One of the reasons for not buying was the expectation of a freight reduction, which was a live topic of conversation right up to the time the actual reduction was granted, to become effective on July 1. After the reduction was considered from all angles, however, it amounted to so little that it had no effect on the trade.

The first indication of better business in the coal business came in May, when the iron industry of the country began to take on a renewed lease of life and began to make better demands for fuel. For a time it seemed as if the steel people were bidding for every pound of coal produced and prices went mounting to $5@$5.75, irrespective of classification. It was at this time that Secretary Hoover stepped in and endeavored to prevent unseemly prices.

A plan of fixed prices for various districts was agreed upon, with $3.50 a popular figure, although the Pennsylvania low-volatile steam producers never actually came to an agreement, these interests endeavoring to get something around $4 for their output. The negotiations had the effect of holding prices in check, however, and in June there was little coal at $5, the price that had prevailed hitherto.

In July the going out of the railroad shop workers had a serious effect on the trade, as much of the non-union coal originated on lines in the South which were most troubled by the strike. As a result prices bounded forward to as much as $8.50. It was then that foreign shippers saw an opportunity to come into this market and prices of $8.50 @$10, laid down at piers in this city, were paid for foreign coal, which continued to be sold freely in this market right through August.

Following the Cleveland agreement prices naturally shaded downward, running from $5.50@$7.25, and at the same time sounding the knell of foreign coal buying. In November the downward movement continued. All of this softening was in the face of a poor car supply, as the roads had far from recovered from the effects of the strike.

The climax of the downward movement seems to have been reached the latter part of December, due to a combination of circumstances. First of all the car supply, instead of growing better, became worse, and in addition colder weather also induced greater consumption. The roads had an opportunity earlier in the season to stock up on fuel, but declined to take advantage of the situation until actually compelled to. With the lessening car supply prices began to move up gradually from December onward and by mid-month were running as follows: Pool 1, $5.20@$5.60; Pool 9-71, $5@$5.30; Pool 10, $4.30@$4.50; Pool 11, $3.40@$4.

Buffalo Has Influx of New Sales Agencies

Newcomers Appear Unobtrusively—No Notable Retirements and No Deaths During Year—City Is Getting Scarcely More Than Half of Tonnage of Year Ago

By John W. Chamberlin

PROBABLY the most noticeable new feature of the wholesale coal trade of Buffalo during 1922 is that mostly during the latter part of the year the number of sales offices have increased about 20 per cent over the previous year and have done so with an unusual degree of quietness and lack of display.

Scarcely a member of the older trade of the city has retired from it in any way during the year. If an outside concern withdrew its agency the manager commonly remained on his own account, sometimes doing much better than he had formerly done. No member of the city coal trade has died, and so far as the anthracite trade is concerned practically no changes whatever have taken place. Members of that trade are still wondering why, with mining considerably heavier than it was a year ago, the city is getting little more than half the coal it did then.

Buffalo is naturally a bear market. With only about a dozen mining companies of its own and being able to play the Pittsburgh, Ohio No. 8 and the Allegheny Valley bituminous markets against one another it often forces even Pittsburgh to sell coal to this market for less than its home quotations. Quite often, so far as steam coal is concerned, the Pittsburgh quotations are not paid here. Gas coal, being more restricted as to territory, is now holding above its usual average as compared with steam grades. All steam coal weakened as the year closed, but independent anthracite, with Scranton and Wilkes-Barre as headquarters, was strong and occasionally advanced from the former premium of $4@$5 over the schedule prices. If the heavy companies had gone into the market as the independents did a trade the like of which has not been seen yet would have resulted.

As, ordinarily speaking, little that is strictly personal is found in the coal trade of the year, mention may be made of the newcomers into the Buffalo market. They include the following, with manager's name if the company name does not indicate: Charles E. Graves Coal & Coke Co.; Grant B. McLaughlin & Co.; W. P. Smith Coal Sales Co.; Astel Coal Co., D. E. Ruckman; J. P. Burton Coal Co., A. R. Stubbs; Cheswick Coal Co., A. R. Carlson; Link-On Coal Co., William E. Schmidt; Theodore Krug Co., F. C. Eschelman; Maher Collieries Corporation, O. E. Southard; Manufacturers' Fuel Co., E. J. Delaney; Merrimac Anthracite Coal Corporation, Treasurer W. G. Russell; Penn-Empire Fuel Co., A. E. Yallowich; Valley Camp Coal Co., M. F. Murphy; Valley Coal Corp., A. D. Grasso.

The Lake trade closed on Dec. 15 with the loading of the steamer *A. B. Uhrig* for Milwaukee. A big effort was made to continue the movement later and 123,600 tons was loaded in December, which is the largest amount for a long time. The amount loaded during the season was 1,070,680 tons. The shipments for the season of 1921 were 3,810,315 tons.

Pittsburgh Coal Prices Pursue Devious Path

During the Strike Regular Pittsburgh District Coal Practically Disappeared from the Market—West Virginia and Kentucky Coal Passed Through Pittsburgh Market to Clairton

BY B. E. V. LUTY

THE YEAR 1922 opened with the Pittsburgh coal district at the same disadvantage, as compared with adjacent non-union districts, as had obtained during the major part of the preceding year, the non-union mines, with deflated wage scales, being able to undersell the Pittsburgh district operators. All that the district had for competitive purposes was its high-grade gas coal, but this did not mean much in point of tonnage because even in the case of gas coal some users were unwilling to pay the extra price. A little help was afforded by the fact that for delivery at many points the non-union fields were at a freight disadvantage. Coal freights were reduced July 1, 1922. Prior to that time, to illustrate, the Pittsburgh district had 14c. lower freight to Buffalo than the Connellsville region.

The year opened with Pittsburgh steam coal at $2.10 @ $2.20, some ordinary gas coal being available at about this range, while high-grade gas was held at higher figures. Pan Handle 1¼-in. domestic lump was $2.75 @ $2.90. There was no market for nut coal and slack was rarely bringing as much as $1.50, so that sellers of screened coal were averaging only about $2.35 for the run of the mine, little more than was obtainable for ordinary steam mine run.

During the first two months of the year the market held at substantially these figures. Consumers were stocking coal against the strike, which was universally expected. They could not remain in ignorance, for much advice was being given to stock coal and to avoid any "last minute rush." The advice must have been fully heeded, for without the strike prospect decreasing a particle a slump came in the market about March 1. Pittsburgh coal, having already been quiet and at prices the operators asserted did not cover the full cost of production, could not suffer much from this slump, which was seen better in Connellsville coal, which had been moving freely for stocking purposes and which declined, using round figures, from $1.75 to $1.50 for Pittsburgh seam and from $1.50 @ $1.60 to $1.25 @ $1.35 for Sewickley vein. Such market as there was for Pittsburgh coal at the end of March could be quoted at $1.80 @ $1.90 for steam mine run, and $2.60 @ $2.70 for high-grade ¾-in. gas. There was nothing like a fair-sized turnover.

When the strike came regular Pittsburgh district coal disappeared completely from the market, except for the relatively small output of a couple of stripping operations on the Pan Handle, this coal being offered at $2.75 for steam lump. Strikes promptly developed in the Connellsville region, from which consumers had been expecting to draw coal right along during the strike.

Except for strip-mined coal, trading in the Pittsburgh market throughout the strike was entirely in the product of near-by non-union fields, whose output was limited by what the trade considered "non-union" strikes but which had been produced by emissaries of the United Mine Workers, who enrolled the miners as regular members on payment of a nominal initiation fee of $1 or $2.

Throughout the second quarter of the year the market rose more or less continuously, until by June 30 Connellsville steam coal was bringing $3.75 and Westmoreland gas somewhat more. The extent of the rise was due largely to the bidding of steel companies which had not expected serious strikes in the Connellsville region. They bought West Virginia and Kentucky coal, and as such fuel commanded high freight rates the consumers were willing to pay high prices for Connellsville coal, which was nearer at hand. Both West Virginia and Kentucky coal came into Pittsburgh, and some went through Pittsburgh and up the Monongahela River as far as Clairton.

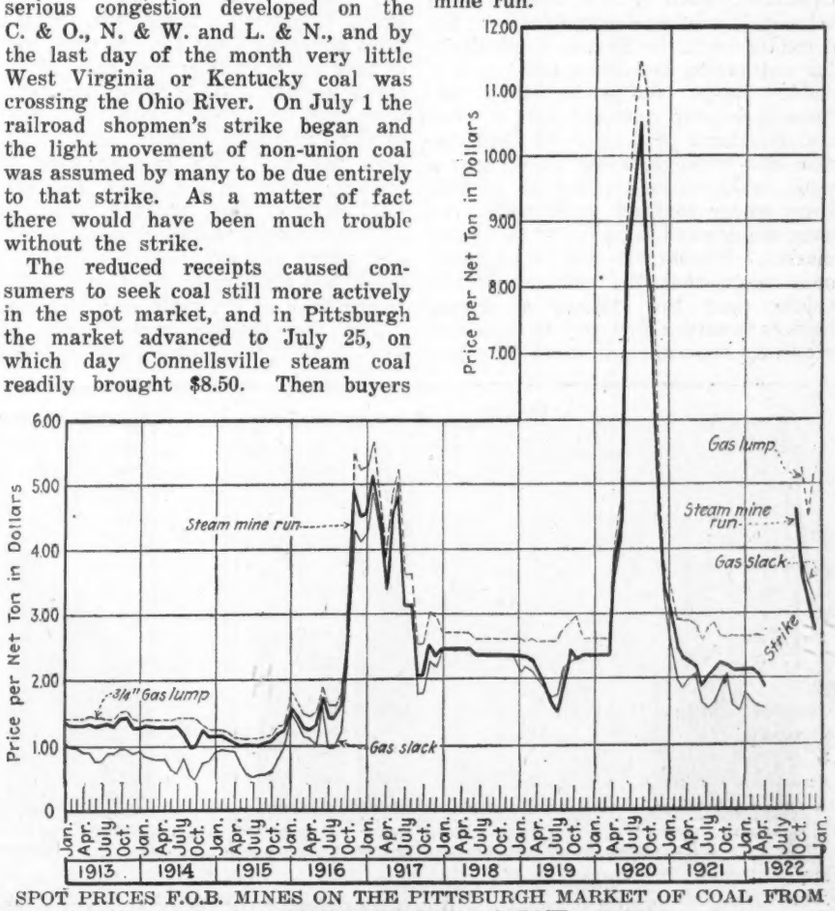
In the closing fortnight of June serious congestion developed on the C. & O., N. & W. and L. & N., and by the last day of the month very little West Virginia or Kentucky coal was crossing the Ohio River. On July 1 the railroad shopmen's strike began and the light movement of non-union coal was assumed by many to be due entirely to that strike. As a matter of fact there would have been much trouble without the strike.

The reduced receipts caused consumers to seek coal still more actively in the spot market, and in Pittsburgh the market advanced to July 25, on which day Connellsville steam coal readily brought $8.50. Then buyers became imbued with the notion that prices would be fixed by the government, and practically withdrew from the market, following which on the morning of Aug. 1 the price was quotable at $6. There was a minor rise afterward, and when the union mines opened the market was $5.

The first Pittsburgh coal that appeared on the market after the settlement was Youghiogheny gas, which brought $6.50 on the first sales. There were constant declines, almost from day to day, afterward. The market was not closely quotable for a time on account of the wide range in quality, as various coals not ordinarily mined were being produced on account of the emergency. Just before the close of the Lake season Pittsburgh steam was $3.25 @$3.50, with Youghiogheny gas at $4.50 for mine run. At the close of the Lake season the market took another drop, and then ruled to the end of the year at about $2.50@$2.75 for steam and $3@$3.25 for Youghiogheny gas, mine run.

SPOT PRICES, F.O.B. MINES, OF BITUMINOUS COAL FROM PITTSBURGH DISTRICT, BY MONTHS, 1922
QUOTED ON PITTSBURGH, PA., MARKET

	Lump	Mine-Run	Screenings
January	$2.65	$2.15	$1.78
February	2.65	2.15	1.65
March	2.67	2.04	1.57
April	2.65	1.85	1.55
May	...	...	...
June	...	...	...
July	...	...	...
August	...	...	...
September	...	4.60	...
October	5.22	3.59	3.81
November	4.50	3.16	3.47
December	5.15	2.72	3.19



SPOT PRICES F.O.B. MINES ON THE PITTSBURGH MARKET OF COAL FROM THE PITTSBURGH DISTRICT

Connellsville Market Rebounds from Low Ebb

Demand Resulting from Strike Proves Stimulus—Steady Falling Off Follows Settlement—Operators Doggedly Resist Further Drop—Finding Destination Now a Burning Question

BY L. U. LESLIE

THE past year saw the coal market in Connellsville at the lowest ebb in history, then witnessed its sudden rise because of the demand resulting from the strike, and only to drop step by step after the strike was settled elsewhere. On Jan. 1 coal was quoted at $1.35 and when the strike went into effect it was at the same figure. Then by leaps and bounds it advanced to an $8 peak, reached on Aug. 15. From that point the price receded slowly day by day until it reached its present figure of $2.25, where it has clung for a month or more, and operators are strongly resisting any further downward moves.

The coke market reached its high point about the middle of August, when furnace coke was quotable at $14@$15 and foundry coke at $15@$16. The Cleveland settlement and the advance in wages in the Connellsville region caused a sharp drop and at the end of August furnace coke sold down to $10, for shipment over September. Idle furnaces were so anxious to get into blast that they bid the market up again to a secondary maximum of $12 late in September. Then the market declined at intervals to $6.50 at the middle of December, when a new influence developed, this being demand for coke for domestic use in the East as a substitute for anthracite, and the market took a sudden jump. As production of anthracite is over 2,000,000 tons a week and merchant production of Connellsville coke averaged about 75,000 tons a week in December, nearly all of this being under contract to furnaces, the domestic demand could easily swing the market. Whether it will be an influence throughout the winter depends chiefly upon the attitude of householders toward a fuel new to them and requiring somewhat different handling.

While the operators were dreaming of the biggest summer's run since the war ended they failed to see the spirit of unrest among their employees. Taking advantage of operators' confidence that their miners would not participate in any strike, organizers for the mine workers were sent into the region, got jobs at many of the mines and started planting the seed of unrest. One by one the great mines in the lower Connellsville region were silenced and in two weeks the strike spread to practically all parts of the field in Fayette County, but the union signally failed in making any inroads into the Westmoreland field.

The strikers are no longer interfering with plant operations and the market demand again is measuring the extent of production. But there is no disputing the fact that the Connellsville coal trade has suffered a permanent loss by reason of the fact that it now must take its place among other districts subject to labor disturbances.

Strike Was Shock of Years at Connellsville

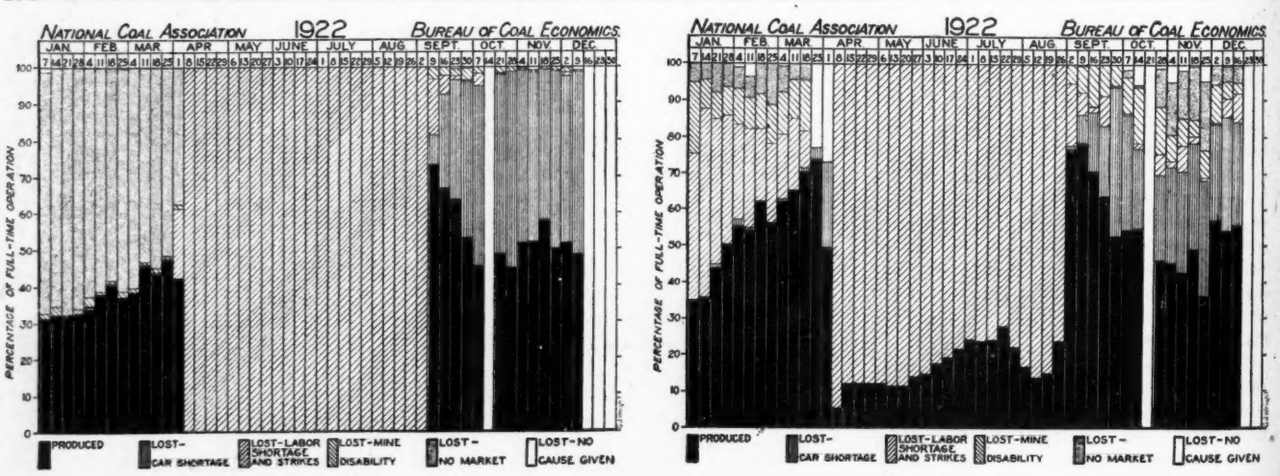
Within Fortnight Coke Production Fell to One-Third Rate at Close of March—Coal Output Dropped Further—Wage Advance Following Cleveland Settlement Failed to End Trouble

BY B. E. V. LUTY

THE event of the year in the Connellsville region, of course was the strike. It was, indeed, the most startling event for many years. The 1922 strike at the union coal mines may have been a great event in its way, but that trade is accustomed to strikes. There have been various strikes in the Connellsville region, the last important one being in 1891. For several years thereafter the "mountain of coke" at the Edgar Thomson blast furnaces served to prevent a recurrence. Wages were advanced from time to time, and at rare intervals they were reduced for short periods. In general the rates were kept in harmony with those paid in the Pittsburgh district, with allowance for the much greater ease of mining. Even in the great iron and steel strike of Sept. 22, 1919, when the agitators sought to close iron-ore mines, coal mines and coke works, there was much less striking in the Connellsville region than at the mills and furnaces.

The Connellsville region scale of Sept. 1, 1920, was in harmony with the existing scale at the union bituminous mines, but wage reductions were made in 1921, resulting in a condition wherein at the beginning of 1922 the cost of producing coal was vastly less in the Connellsville region than at the union mines under the scale which the United Mine Workers sought to continue for the two years from April 1, 1922.

Within a fortnight after April 1 production of coke in the Connellsville and lower Connellsville region was down to one-third the rate at the end of March, and the production of coal for shipment had decreased still further. The strike was strongest along the Monongahela River, where most of the coal for shipment is produced, much of it moving by water. It was confessed by large operators that they had not expected the strike. There was evidence of careful planning on the part of the representatives of the United Mine Workers, who produced the strike, and there also was evidence that if some of the men responsible for the iron and steel strike of 1919 were not



Pittsburgh (Pa.) District Kansas District

PERCENTAGE OF FULL-TIME OPERATION OF COAL MINES AND TIME LOST BY CAUSES

actively at work their precise methods at any rate were carefully followed.

Predictions were common that this "non-union strike" would not last nearly as long as the union strike. Like most predictions made about the strike, this proved erroneous. When the Cleveland settlement of the union strike was made the Connellsville operators advanced wages to the scale of Sept. 1, 1920, the highest ever paid in the region, except that outside day labor was set at a lower rate than in that scale. It was expected that the strike would completely crumble, but it did not. There had been gradually increasing production since the first month or two of the strike, and early in September, with the heavy demands upon the railroads to move union coal, the car supply in the region became such that additional workers were not particularly needed. From that time to the end of the year operations were controlled by car supply and market demand, but the "strike" continued in the sense that there were strikers, supported in part by the United Mine Workers. Obviously the object is to retain a nucleus if there is to be another union strike in 1923. This is a fact that should be considered in all discussion of the probability of there being a coal strike April 1, 1923.

SPOT PRICES, F.O.B. MINES, OF BITUMINOUS COAL FROM SOUTHEASTERN KENTUCKY, BY MONTHS, 1922
AVERAGE OF QUOTATIONS ON LOUISVILLE, CINCINNATI AND CHICAGO MARKETS

	Lump	Mine-Run	Screenings
January	$2.85	$1.58	$1.25
February	2.70	1.55	1.21
March	2.25	1.55	1.34
April	2.29	1.85	1.54
May	3.16	3.01	2.97
June	3.49	3.25	3.02
July	5.81	5.67	5.62
August	5.71	5.59	5.40
September	6.20	5.49	5.29
October	6.80	4.46	4.30
November	6.59	4.06	3.96
December	6.49	3.40	3.21

Cincinnati Coal Trade Had Most Remarkable Year in More Than Decade

Many New Firms, Branches and Sales Offices Cause Notable Expansion in Tonnage and Territory Represented—Failures Were Not of Much Importance

By Harold W. Coates

LEAVING aside all the questions inextricably bound up in the disputes that have arisen through the labor question, this has been the most remarkable year of more than a decade so far as the Cincinnati coal trade is concerned. Through the addition of a score or more new firms and the adding of branches and sales offices there are now doing business here over 100 coal firms whose shipments might well be traced from "dear old Lun'on to far off Cathay." The expansion of business through these new offices has increased in tonnage as well as to territory into which the coal has been poured.

It might also be said that each period of feverish activity has brought its flock of new concerns—each seemingly finding it necessary to have representation on the Cincinnati market or else finding this a fertile field in which to sow. Nor have the new firms been more largely of the jobber order, for quite a number of them are offshoots of mines that have opened in Kentucky and West Virginia who see advantage in having a medium for sale between the producer and the consumer.

On the other side of the ledger there are but few entries. One or two weak brothers have dropped out of the running, but they were either puny in character or weaklings to begin with.

The beginning of the year saw the trade in the doldrums with an after-holiday state of affairs that had put most of the takers of coal in a position of doubt. Even the menacing clouds of a labor dispute of magnitude failed to act as a bracer and January saw the domestic market the steam market and even the usual ready sale for smokeless slipping in quite alarming fashion.

On several occasions the price of slack sank below the dollar mark and there was a general effort on the part of most of the producers to hold lump firm and sacrifice on slack to prevent any great accumulation. It was in this period that one or two of the direct sales agents for mines here took the lead in slashing prices in order to keep their mines going. These to a degree set the pace, for their price lists were flooding the mails and were a counter argument to others who tried to hold the helm a bit steady.

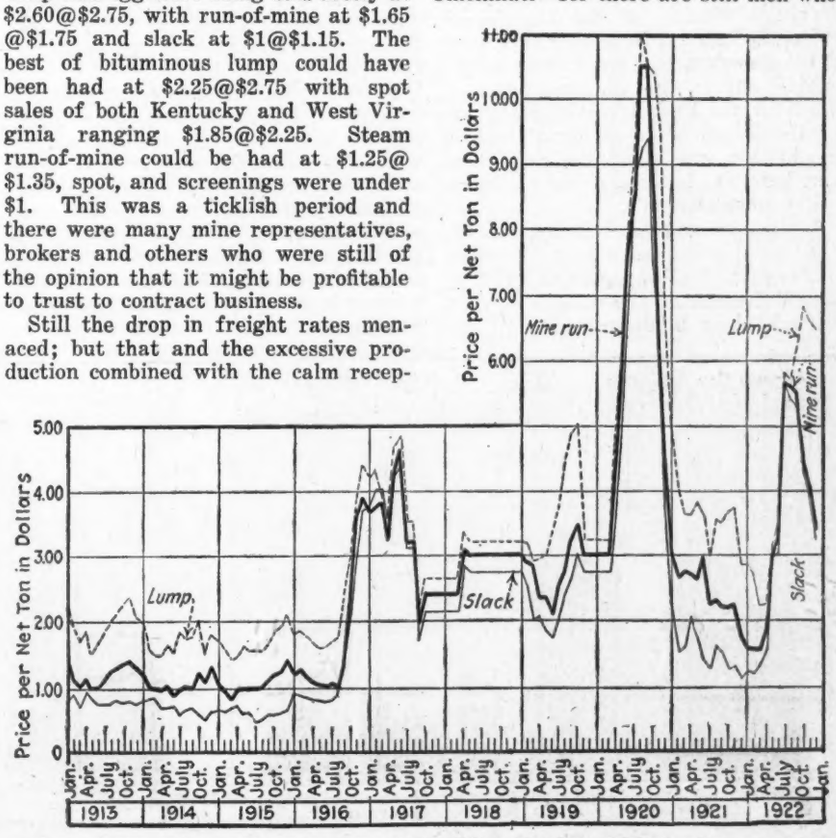
During March the banner coals had dropped greatly in price. Smokeless lump and egg were being sold freely at $2.60@$2.75, with run-of-mine at $1.65 @$1.75 and slack at $1@$1.15. The best of bituminous lump could have been had at $2.25@$2.75 with spot sales of both Kentucky and West Virginia ranging $1.85@$2.25. Steam run-of-mine could be had at $1.25@ $1.35, spot, and screenings were under $1. This was a ticklish period and there were many mine representatives, brokers and others who were still of the opinion that it might be profitable to trust to contract business.

Still the drop in freight rates menaced; but that and the excessive production combined with the calm reception of the actual strike situation failed to arouse any great price stimulus for weeks. The beginning of May, however, saw a change in tone. Reserves were beginning to melt away.

From a position of waiting hat in hand in the outer office, the small producer down in the hills began to take on a new significance. His production was being solicited. War times and the after-armistice period made this figure in the trade business-wise. He was canny. He began flirting with the middleman and by June the most of them were packing their buyers off to producing points to deal for the coal as it came from the mouth of the mines. Wagon mines that had been hit by the inertia came to life with a bang.

From the last of May until the middle of June jumps in price of 50c. to $1 within a week were not uncommon and then Secretary Hoover stepped in with the stern order to desist.

Perhaps it is a bit harsh to recall that period—that is as it applies to Cincinnati—for there are still men who



SPOT PRICES F.O.B. MINES ON THE LOUISVILLE, CINCINNATI AND CHICAGO MARKETS OF COAL FROM SOUTHEASTERN KENTUCKY

found one week with apparently the sky the limit, with buyers in the field who were paying around $4@$4.50 for coal only to have Mr. Hoover put his foot down on the skyrocketing of prices. They found that the Secretary of Commerce was speaking to the buyer.

Meetings of the operators with Mr. Hoover resulted in the smokeless coals being placed upon a basis of $3.25 for slack, $3.50 for run-of-mine and $3.75 for lump. And it might be said here that this part of the trade kept faith with Secretary Hoover and the prices on that level.

The middle of July found Mr. Hoover's attention directed to the Cincinnati market by reports that the price had mounted to $4@$5 once more. This was the crucial period in which the government was forced to action, and with the open season for priorities, district managers and distribution agencies coming on there was the usual hurly-burly attendant upon the government's attempt to regulate trade without the machinery of the law to enforce the demands.

Then came the establishment of the new Hoover prices in the smokeless field, which took into account the fact that producers with selling agencies should be allowed brokerage fees. This brought the price up to $4.56 for nut and slack, $4.86 for run-of-mine and $5.13 for lump and egg. The Ohio Fuel Administration came into being soon after the government regulation of affairs; but through the fact that the larger amount of Cincinnati's coal was interstate this did not cut much of a figure until Governor Davis called a special meeting of the Legislature and passed an act legalizing this wing of the government. Even then it was pointed out to the Governor's agent, Mr. Neal, the Fuel Administrator, that the Cincinnati trade could not be held accountable, and about the only thing done here was to make a few of the retailers uncomfortable.

September and the closing of the labor trouble showed a general scramble for coal. Railways, which had been the chief cause of the upturn in price through their bidding for what coal was available, despite the system of priorities, were still heavy takers. The steel mills were in the market. Henry Ford made his famous declaration—even with his deal with certain groups of Cincinnati brokers in progress—and the price of coal steadily advanced.

It was in this period that the Lake shippers became heavy customers, though it is to be said that some of the tactics that were employed still have a strange twist to them.

Even after the close of the Lakes there was a fine line of distinction made between coals that were for steam purposes and those that were used in the steel and byproduct plants with the latter taking anywhere up to $1 premium. The middle of November, however, saw the high values starting to wane. Several times the market settled with the prices easing off, only to recover an equilibrium that held out hope that bottom was being reached.

The railway situation to the south of the river has been muddled. The N. & W. and the L. & N. acknowledge that it will be months before there will be a complete recovery from the shopmen's strike. The C. & O. at one time was forced to embargo westbound coal in order to clean up accumulations.

The closing of the year saw a price range of ups and downs wholly out of line with any set precedent. The weather during the fore part of December was mild, and this with the usual accumulation at the Lake ports and a drop in the interest of buying for steel mills dulled the market. Then came a cold snap with an attendant tie-up of transportation, and with the country taking coal from hand to mouth this had an immediate effect. For the first time in months $2.50 coal was on record and then the price immediately swung upward again until Christmas saw it hovering around the $4 mark.

In Southern Ohio 1922 Was Not a Good Year

Operators' Profits After Strike Not Sufficient to Counterbalance Previous Losses—Many Jobbers Made Handsome Profits—Retailer's Path Beset with Difficulties—Output Lowest Since 1915

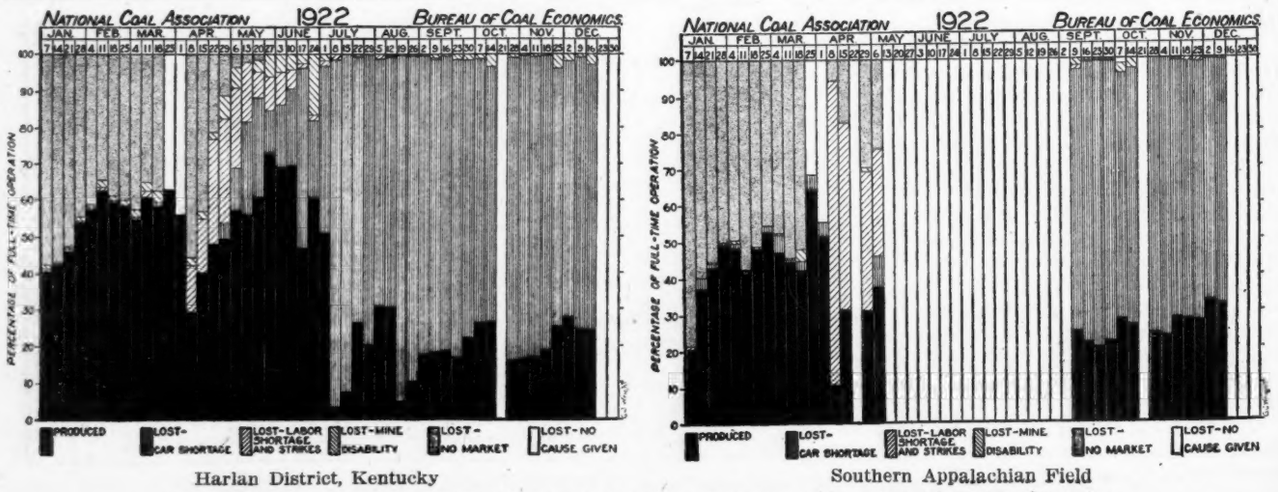
BY J. W. LEHMAN

THE year 1922 was not a good one for the coal industry in the Buckeye State. Many things mitigated against a better and more profitable year, principally the strike. For the operator it was a bad year and while some huge profits were made following the settlement of the strike, still these have not been sufficient, in most cases, to counterbalance the losses previous thereto.

From the jobber's standpoint the year was a good one in many respects. During the first three months wholesalers were able to handle a fair tonnage at small margins, but with the declaration of the strike they began to take an active part in the business. Coal from the non-union fields of West Virginia and Kentucky came into the state and jobbers in many cases made handsome profits.

The retailer had a fair year as a rule, although it was beset with many difficulties. One of these was the Ohio Fuel Administration. This administration fixed retail profits at a time when profits would naturally have been larger. But on the whole the retailer has little complaint to offer.

Statistics of the Southern Ohio Coal Exchange show an approximate output in Ohio during the year of 25,650,000 tons. This estimate is based on the production up to Dec. 1 and an estimate of the last month, which is placed at 3,000,000 tons or more. The output in 1912 was 34,444,000 tons; in 1913, 36,285,000 tons; in 1914, 18,736,000 tons; in 1915, 22,627,000 tons; in 1916, 34,526,000 tons; in 1917, 41,678,000 tons; in 1918, 47,919,000 tons; in 1919, 35,226,000 tons in 1920, 45,227,000 tons and in 1921, 29,065,000 tons.



Harlan District, Kentucky — Southern Appalachian Field

PERCENTAGE OF FULL-TIME OPERATION OF COAL MINES AND TIME LOST BY CAUSES

While the strike was predicted for some time the usual stocking up on the part of steam users was not as heavy as in some former years when strikes were called. This is due to the fact that stocks were already large and also to the business uncertainty of the future.

The year opened with low prices and there was nothing outside of the threatened strike to stimulate the market. As a result lump was sold around $2.20@$2.50 during the entire time. Mine run was rather weak, selling at $1.60@$1.85 and screenings, $1.50@$1.85. Just previous to April 1 there was a slight increase, but this was almost negligible.

Little effect on quotations was noticed for the first 45 days of the strike. But by May 15 there came a bull movement and prices advanced materially. This state of affairs continued right up to the settlement and immediately afterward, when the extreme high prices of the year prevailed. The Ohio Fuel Administration came into being and fixed prices to be paid at the mines in all of the producing fields of the state. This was not brought about until fully five weeks after the strike and operators shared in the big quotations as a rule up to that time.

Ohio prices were originally fixed at from $3.56@$4.86 for mine-run. The provision of the administration was that prepared sizes would be 25c. higher while screenings were 25c. lower than those levels. In all there were nine mining districts in the state according to the plan of the Ohio Administration.

These prices were considerably lower than current quotations and consequently the larger part of the production was shipped out of the state. To supply the deficit West Virginia and Kentucky varieties were shipped into Ohio at fancy prices and the consuming public was not benefited materially by the fixation of prices. Many complaints were received from the public when the administration permitted operators producing lumps "Especially prepared for domestic use" to charge 50c. more than the former schedule. This had the effect of retaining a larger proportion of the Ohio output for Ohio users.

At the close of the year stocks in the hands of retailers were only fair and in some cases shorter than usual at the time of the season. This was because householders were not buying actively, preferring to place small orders in the belief that lower prices would prevail after the first of the year. Retailers were loath to stock up on high-priced coal and consequently the policy was to conduct that business from hand to mouth. Stocks in the hands of steam users were somewhat larger, variously estimated at from 30 to 60 days. In some instances even shorter stocks were carried, as steam users also had the idea of cheaper coal until the final break just before the end of the year.

With colder weather producers, distributors and dealers believe there will be a steady demand for domestic sizes during the early part of the year. But the steam market is not looked upon in the same way and it is believed that prices for mine run and slack will continue at a rather low level for some time to come.

SPOT PRICES, F.O.B. MINES, OF BITUMINOUS COAL FROM HOCKING DISTRICT, BY MONTHS, 1922
QUOTED ON COLUMBUS, OHIO, MARKET.

	Lump	Mine-Run	Screenings
January	$2.76	$1.86	$1.36
February	2.65	1.86	1.37
March	2.60	1.82	1.49
April	2.60	1.88	1.60
May	3.37	3.18	2.86
June	3.44	3.24	3.15
July	5.00	4.95	4.59
August	6.16	5.84	5.51
September	6.12	5.19	5.04
October	5.34	3.80	3.52
November	5.27	3.46	3.01
December	5.05	2.76	2.62

Eastern Ohio Had Many Tribulations in 1922

Potential Loss of 12,000,000 Tons Production Due to "No Market," Miners' Strike and Car Shortage—Bargain Counter Coal Prices of January and February Failed to Stimulate Buying

BY K. M. PINAIRE

OPERATIONS in eastern Ohio perhaps experienced during 1922 a greater variety of tribulations than ever before. The year began with coal prices lower than had prevailed in many months, but this price range which proved to be the bargain counter of the year failed to stimulate much buying on the part of a convalescent industry. Large users, such as public utilities, railroads and steel mills, had not made appreciable inroads on their reserve stocks and considerable optimism prevailed that impending labor troubles at the mines would in some way be settled so as to result in lower production costs.

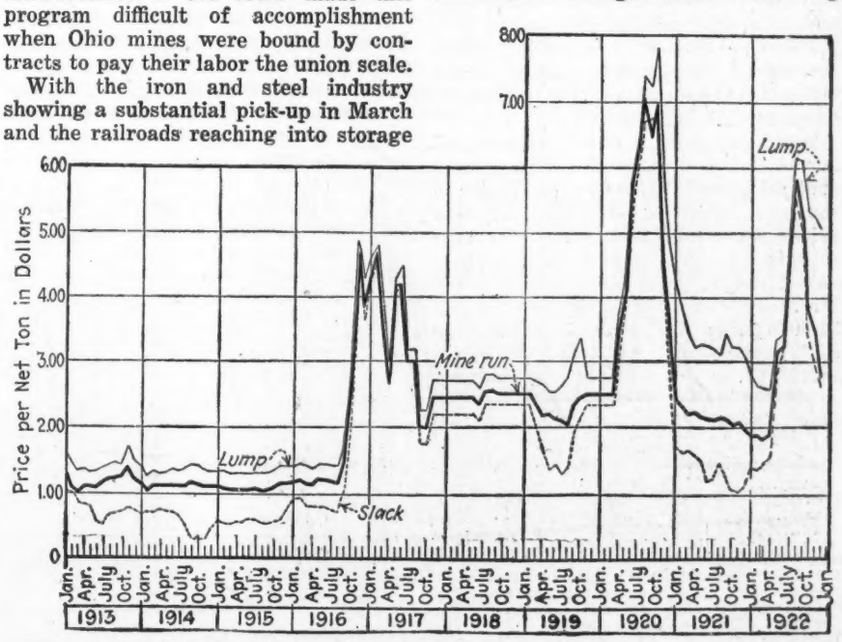
During the first quarter of the year mines worked less than 50 per cent of full time, the only factor of any significance hindering production being "no market."

In an effort to create more work for Ohio miners the Governor of the state in early February appealed to consumers throughout the state to confine their purchases to Ohio coal, and particularly urged municipalities and public utilities to heed his suggestion. However, lower production costs at non-union mines to the south made this program difficult of accomplishment when Ohio mines were bound by contracts to pay their labor the union scale.

With the iron and steel industry showing a substantial pick-up in March and the railroads reaching into storage tracks pulling empties to take care of increased traffic all-round, coupled with increased fuel demand for storage purposes, mining operations were stimulated to the highest point of the year, and by the end of the month consumers in this section had enough coal on hand to last anywhere from forty to ninety days.

During the strike period, the majority of stripping mines in the district continued to operate and produced between 30,000 and 60,000 tons per week. While the stripping coal was able to supply fuel in many emergency cases, quite a few large consumers located contiguous to the lower ports protected their situation by acquiring cargoes from steamers which had already been loaded and were awaiting the opening of Lake navigation.

Likewise, others moved to nearby cross-Lake ports to replenish weak spots in coal reserves. Not until early July did there appear any real anxiety, as by that time stripping and non-union coal began to prove inadequate. The effect of this scant fuel supply brought reports of hampered operations of steel mills and banking of furnaces in the Youngstown and Mahoning



SPOT PRICES F.O.B. MINES ON THE COLUMBUS MARKET OF BITUMINOUS COAL FROM THE HOCKING DISTRICT

PRODUCTION OF COAL IN EASTERN OHIO, 1922
(In Net Tons)

Railroads	B & O	Penna.	W.& L.E.	N. Y. C.	Totals
No. of mines	(75)	(45)	(45)	(12)	(177)
January	595,000	365,000	315,000	106,000	1,381,000
February	627,000	376,000	332,000	98,000	1,433,000
March	826,000	470,000	378,000	35,000	1,709,000
April*	15,000	30,000	60,000	50,000	155,000
May*	15,000	20,000	60,000	50,000	145,000
June*	10,000	15,000	50,000	40,000	125,000
July*	10,000	10,000	50,000	40,000	110,000
August*	193,000	186,000	77,000	57,000	513,000
September	486,000	444,000	259,000	170,000	1,359,000
October	474,000	439,000	261,000	154,000	1,328,000
November	528,000	337,000	316,000	120,000	1,301,000
December	491,000	364,000	275,000	145,000	1,275,000
Totals	4,270,000	3,056,000	2,443,000	1,065,000	10,834,000
Per Cent by Railroads	39.4	28.3	22.5	9.8	100

* Stripping mine output April 1 to Aug. 17 estimated.

Valley districts and the Detroit & Cleveland Navigation Co. sought relief by enlisting the aid of Secretary Hoover. With a shortage becoming imminent, prices hit the high level of the year.

By the middle of July Cleveland's coal supply became such a matter of concern that the Chamber of Commerce appointed a committee to cope with the situation. During the same month several injunctions were granted through the Federal District Court restraining union miners from interfering with stripping-mine operations and the arrival of National Guard caused an immediate increase in stripping output.

Coal had become so scarce by early August that vessel operators were reported to have paid in some cases as much as $10 per ton for bunker coal. On Aug. 16, as result of the Cleveland joint conference, telegraphic instructions were sent out to local unions and machine men began cutting coal in easten Ohio on the 17th.

Spot prices then dropped $1@$2. Despite the prolonged strike, no widespread demand appeared and the procrastinating attitude of buyers was again bolstered up by the appointment of an Ohio Fuel Administrator and the fixing of maximum prices on coal from the various fields. Price regulation became effective Oct. 10, maximum figures f.o.b. eastern Ohio mines being as follows: Slack, nut and slack, $3.31; mine-run, $3.56; lump, $3.81.

Effective Nov. 15, increases were allowed on lump sizes, resulting in the following range: Lump, 1¼ in., $3.81; lump, 2 in., 4 in., 6 in., $4.31.

Before all price restrictions were removed Dec. 1, demand had subsided and spot prices had receded to figures below the state maxima. A review of spot prices prevailing throughout the year reveals that the lowest figures prevailed during the first quarter, when the range was about as follows: Slack, $1.50@$1.90; nut and slack, $1.65@$1.90; mine-run, $1.75@$1.95; lump, $1.85@$3.

PERCENTAGE OF TIME LOST BY MONTHS DURING 1922

	Per Cent	Cause
January	57	No market
February	51	No market
March	46	No market
April	100	Miners' strike
May	100	Miners' strike
June	100	Miners' strike
July	100	Miners' strike
August	81	Strike 53%, car shortage 15
September	47	Car shortage
October	60	Car shortage
November	52	Car shortage
December	60	Car shortage

While no figures are yet available as to 1922 production in the State of Ohio, an estimate is made that it will not exceed 25,000,000 tons, and the following table, made comparative with the four preceding years, will indicate the prominence of the eastern Ohio field in the annual production of coal in the state:

Year	Eastern Ohio	State of Ohio	Per Cent
1918	21,043,010	47,919,202	43.8
1919*	16,416,319	35,225,908	46.6
1920	19,584,806	45,227,077	43.3
1921	18,031,000	32,000,000	56.0
1922*	11,000,000	25,000,000	44.0

* General strike six weeks.
† General strike four and one-half months.

Bituminous coal receipts at Cleveland for industries and retail yards during the year 1922 are shown by the following table:

	Net Tons
January	419,047
February	455,760
March	462,653
April	231,756
May	341,108
June	358,184
July	234,486
August	372,451
September	752,427
October	410,307
November	634,882
December	641,141
Total	5,314,202

Year	
1918	7,300,000
1919	6,394,000
1920	4,194,000
1921	4,042,001

Detroit Had Year of Disappointment in 1922

Market at No Time in Healthy, Normal Condition—Influences Outside the Industry Had Depressing Effect—Hopes of Jobbers and Wholesalers Unfulfilled

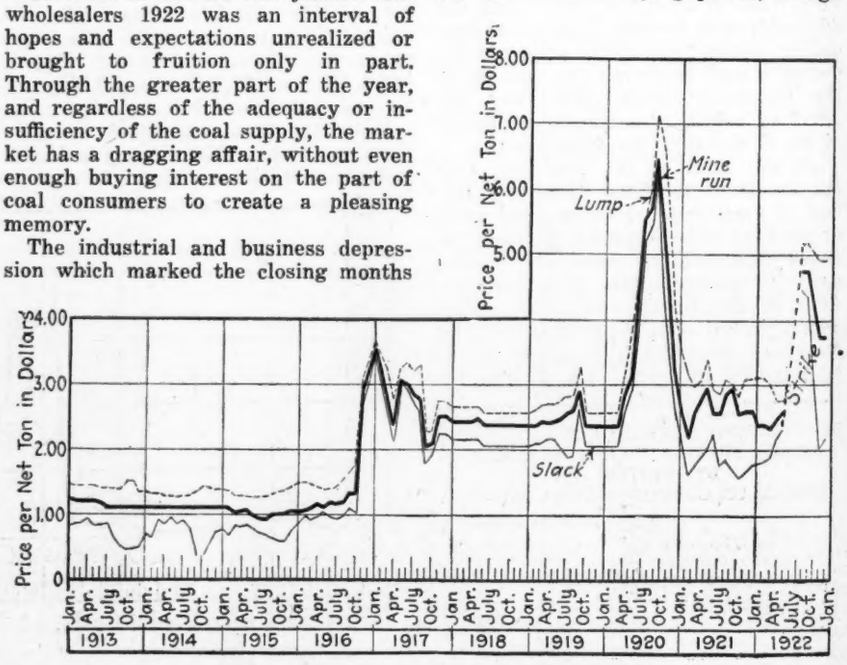
BY E. E. DUNBAR

As a whole, the twelve-month just ended was a period of disappointment for representatives of the coal trade in Detroit. From the opening to the close of the year there was perhaps no time when the local market could be considered as in a healthy, normal condition. At various times throughout the year the coal business suffered from the restrictive influence of depressing events, some of which were a development outside of and apart from the industry.

To most of the Detroit jobbers and wholesalers 1922 was an interval of hopes and expectations unrealized or brought to fruition only in part. Through the greater part of the year, and regardless of the adequacy or insufficiency of the coal supply, the market has a dragging affair, without even enough buying interest on the part of coal consumers to create a pleasing memory.

The industrial and business depression which marked the closing months of the previous year was carried over into the early part of 1922. Many industrial consumers were carrying reserves of considerable magnitude, so also were many of the retail dealers. This condition was not altogether a result of overliberal buying in the preceding months but was rather the natural outcome of a reduction in consumption.

The sluggish state of the market continued well into March, with the railroads and public-utility companies supplying the chief buying power, though



SPOT PRICES F.O.B. MINES ON CHICAGO MARKET OF BITUMINOUS COAL FROM FOURTH AND FIFTH VEINS, INDIANA

SPOT PRICES, F.O.B. MINES, OF BITUMINOUS COAL FROM INDIANA 4th AND 5th VEIN DISTRICTS, BY MONTHS, 1922 QUOTED ON CHICAGO, ILL., MARKET

	Lump	Mine-Run	Screenings
January	$3.13	$2.37	$1.79
February	3.10	2.37	1.81
March	3.00	2.34	1.88
April	2.77	2.47	2.17
May	2.77	2.55	2.32
June	....	....	....
July	....	....	....
August	5.17	4.75	4.47
September	5.17	4.75	4.35
October	5.04	4.24	3.06
November	4.92	3.72	2.01
December	4.92	3.72	2.17

even these purchasers indicated a curtailment of requirements.

Not even the strike news possessed sufficient galvanic power to rouse the coal buyers from the apathy into which they had fallen. Only a few of the steam buyers exerted any active effort to add to their stocks and in the case of some of these the attempt was made too late to be productive.

Another factor in the situation which was an influence in preventing any rush of buyers preceding the miners' strike was the fact that a considerable number of steam plants during the early months of the year had been obtaining most of their supply from the non-union mining districts of West Virginia and Kentucky. Because of its generally high quality and the lower cost of production, this coal had almost driven out of the market the product of the union mines. Among buyers the expectation was generally encouraged that these non-union mines would be able to continue adequate production during the strike.

The unforeseen complications injected into the situation by the closing of a number of these mines in districts where the union organizers had been busy, and by the strike of railway workers, brought to the local market in the late summer a brief period when buying demand was perhaps the most active of the year, with supply at the lowest level.

With the resumption of union production, the volume of buying demand eased off. The reversion to a sluggish market was attributed to unwillingness of either users of steam coal or retail dealers to pay the prices imposed by the operators of the reopened union mines.

The attitude of the buyers doubtless was encouraged to some extent by a statement issued by Henry Ford, who urged coal buyers to limit their purchases to the quantities actually necessary to supply current needs.

This attitude apparently has been maintained through the last three months of the year. Its efficacy as a means of lowering mine prices is still somewhat in question.

In the intervening weeks, however, there has been some reduction of mine prices. Hocking lump, quoted around $6 early in October, is now about $5.50 and mine-run is down from $4 to $3.50, while nut, pea and slack have eased off from about $3.50 to $2.75. West Virginia and Kentucky lump has declined from $7 to $5.75; mine-run from $4 to $3.50 and slack from $4 to about $3. Smokeless, with supply limited, is still holding around $8 for lump and egg and $6 for mine-run.

These prices show a considerable advance from the lowest of the year, in late March, when West Virginia 4-in. lump was obtainable at $2.50; egg at $2; mine-run at $1.50 and slack at $1.30. Three-inch Ohio lump was then quoted $2.75; egg, $2.25; mine-run, $1.85; slack, $1.50. Smokeless lump was $3.25; mine-run, $2, and slack, $1.50. A month after the opening of the strike, or about May 1, smokeless lump and egg was obtainable at $3.75 and mine-run at $2.40. West Virginia and Kentucky lump was held at about $3; mine-run at $2.50@$2.60 and slack at $2.40.

Alabama Market Had Good Year, But Progress Was Not as Great as Expected

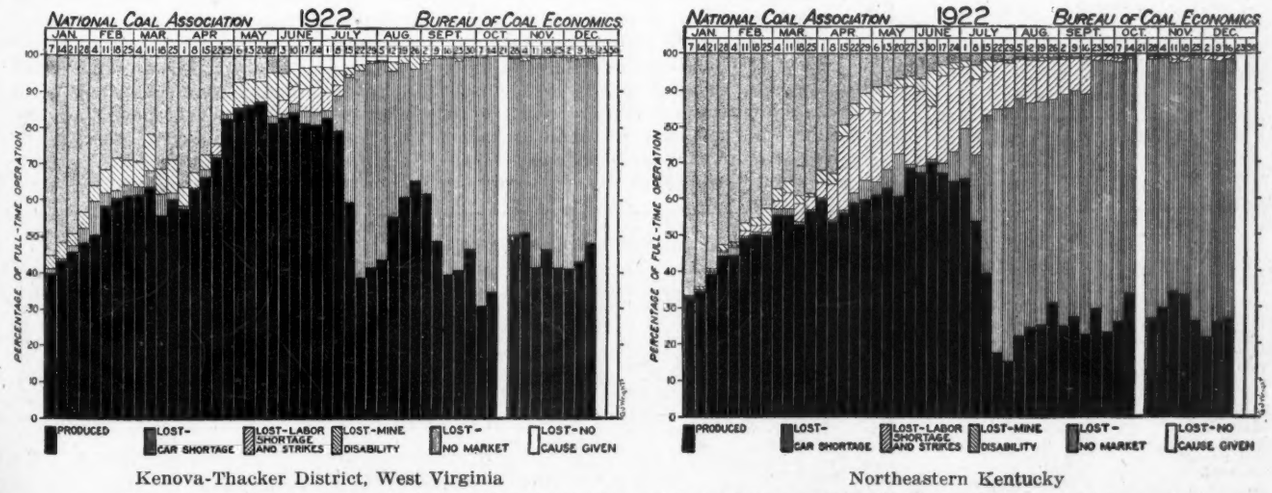
As This Region Operates on Open-Shop Basis, Strike in Central Competitive Field Proved a Boon—Production Reached Peak of 400,000 Tons per Week.

BY H. B. MCLAURINE

ALTHOUGH trade conditions in Alabama did not show the degree of progress toward normalcy which was expected following the previous year of extreme dullness and lack of demand for fuel, the market might be rated as having been fairly good, considering the adverse circumstances affecting production and consumption. Some improvement in the industrial situation was noted; railroads and other utilities required an increased tonnage, and as a result of constantly increasing activity in furnace operations and better demand for foundry products as the year wore on, the need for furnace and foundry coke was greater and the consumption of coal in coke manufacture was much heavier than during 1921.

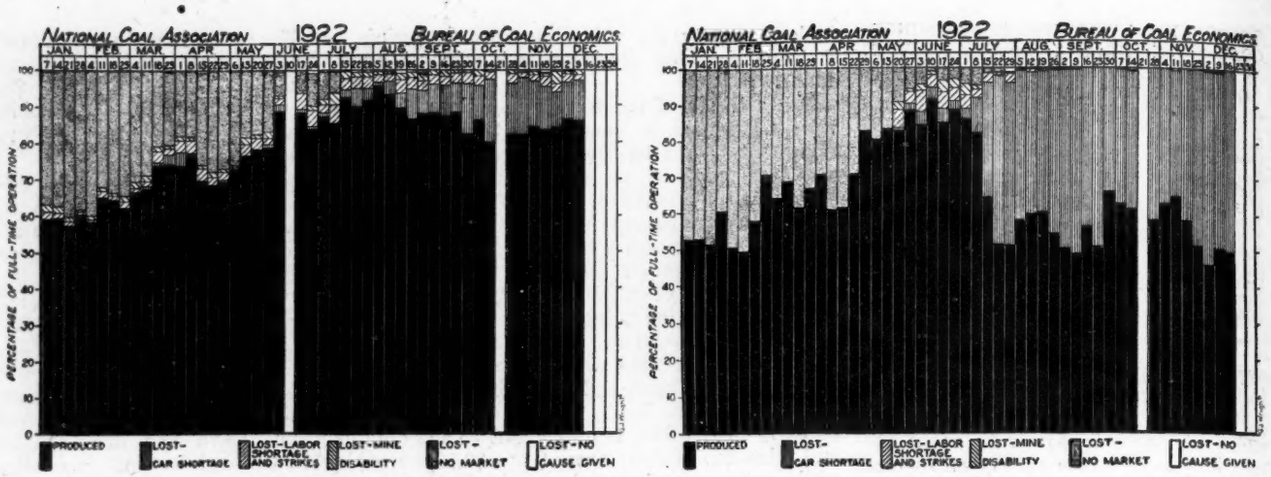
Bunker and export trade did not show material improvement and the amount of coal moving to the Gulf ports was perhaps no greater than during the previous year. Slow recovery of shipping and the increased use of oil as motive power contracted the need for bunker fuel, and the further utilization of hydro-electric power reduced coal requirements at inland points to some extent.

During the first two and a half months of the year there was little demand for commercial coal. The latter part of March the railroads and some industrial interests bought considerable coal for stocking in anticipation of the strike, which temporarily stimulated the trade, and the negotiation of contracts for railroad, industrial and domestic coal through April, May and June tended to stabilize operations. Inquiry for spot coal in the meantime was fairly active, the requirements being about equal to the supply of free coal available. Consumers not covered by contract maintained throughout the



Kenova-Thacker District, West Virginia — Northeastern Kentucky

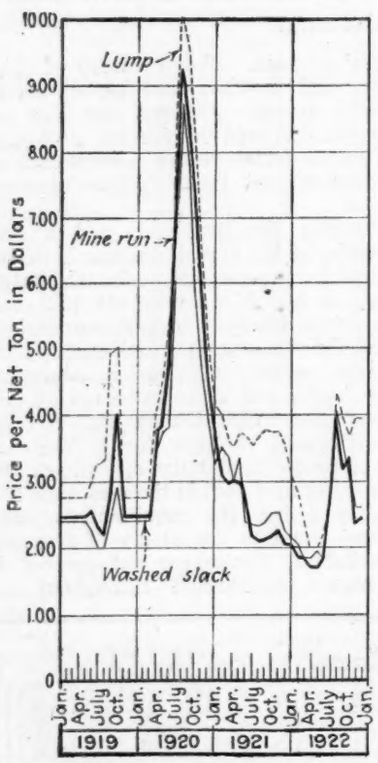
PERCENTAGE OF FULL-TIME OPERATION OF COAL MINES AND TIME LOST BY CAUSES



PERCENTAGE OF FULL-TIME OPERATION OF COAL MINES AND TIME LOST BY CAUSES

year a policy of providing only for needs of the immediate future.

During the latter part of June railroads in the North and West, which had practically exhausted the large surplus stocks accumulated prior to the strike in the union fields, turned to this market for coal and bought heavily over a period of about two months, a good demand also developing from industrial sources in the same territory. This movement continued until the strike settlement was effected in the Central Competitive field and proved a decided boon to the industry in this district, which experienced no labor troubles, operating as it did on the open-shop basis. Production reached a peak record of 400,000 tons per week, consumers in normal Alabama territory in the meantime being amply supplied and suffering no ill effects from the foreign movement. The commercial market during the remainder of the year was easy, but requirements were ample to take care of the restricted production caused by a drastic car shortage which immediately followed the cancellation of foreign business and the withdrawal of equipment which had been furnished the mines in unlimited quantity to move the emergency tonnage.



SPOT PRICES F.O.B. MINES ON THE BIRMINGHAM MARKET OF COAL FROM ALABAMA FIELDS

Demand for domestic coal was good practically throughout the year, there being strong pressure the greater part of the time, with only a few brief periods of lessened activity. Suspension of operations in union fields created a market for considerable tonnage in portions of Georgia and Mississippi formerly supplied from Tennessee and Kentucky mines, thus expanding dependent territory. The activity of the market was occasioned by a shortage in supply and wider distribution.

Periods of dullness in the steam trade materially reduced the normal output at commercial mines from which practically 75 per cent of domestic sizes come, car shortage and crippled transportation conditions incident to the strike curtailed production at all operations, and there was little chance for dealers to acquire reserve supply.

SPOT PRICES, F.O.B. MINES, OF BITUMINOUS COAL FROM BIG SEAM DISTRICT, BY MONTHS, 1922
QUOTED ON BIRMINGHAM, ALA., MARKET

	Lump	Mine-Run	Washed Slack
January	$3.02	$2.05	$2.14
February	2.82	1.85	2.04
March	2.47	1.85	1.85
April	2.00	1.70	1.85
May	2.00	1.70	1.95
June	2.20	1.84	1.85
July	2.79	2.67	2.79
August	4.31	3.95	4.06
September	3.97	3.17	3.59
October	3.67	3.32	3.04
November	3.95	2.35	2.60
December	3.95	2.41	2.60

Quotations on steam grades began to ease in January and suffered a slight gradual reduction until June, when they began to stiffen again with the coming of inquiry from outside territory and the eventual placing of orders for heavy tonnage for foreign shipment. The demand from the North and West became so strong that quotations for spot mine run and washed coal rose rapidly, ranging $5@$7 at the peak of the movement, and spot domestic brought similar figures in nearby territory.

In an effort to stabilize market conditions producers representing the majority of the tonnage in the field agreed to abide by prices fixed by Secretary Hoover, which were based on a 25c. reduction on the old government schedule, but as most of the coal available for the spot trade came from small operations, many of which began to function with the development of the emergency demand, coal moving to foreign territory continued to bring a large premium over the fixed schedule

RANGE OF QUOTATIONS ON STEAM COAL DURING 1922

	January		April		July (27) (Gov.)		September (State)		December	
	Mine-Run	Washed	Mine-Run	Washed	Mine-Run	Washed	Mine-Run	Washed	Mine-Run	Washed
Big Seam	$1.75@$2.00	$1.75@$2.00	$1.50@$1.90	$1.75@$2.00	$2.20	$2.50	$2.60	$3.10	$2.25@$2.75	$2.50@$3.00
Carbon Hill	1.75@ 2.00	2.00@ 2.25	2.00@ 2.25	2.00@ 2.25	2.60	2.80	3.00	3.50	2.50@ 2.75	2.75@ 3.25
Cahaba	2.25@ 2.50	2.25@ 2.50	1.85@ 2.25	2.00@ 2.25	3.20	3.50	3.60	4.10	3.00@ 3.25	3.00@ 3.75
Black Creek	2.25@ 2.50	2.25@ 3.00	2.00@ 2.40	2.25@ 2.50	3.20	3.50	3.60	4.10	3.00@ 3.25	3.00@ 3.75
Pratt	1.75@ 2.00	.....	1.75@ 2.00	1.90@ 2.25	2.60	2.80	3.00	3.50	2.75@ 3.00	.....
DOMESTIC QUOTATIONS — LUMP AND EGG										
Big Seam	$2.75@$3.00	.....	$2.00	.....	$2.50	.....	$3.45@$4.45	.....	$3.45@$4.45	.....
Carbon Hill	3.00@ 3.25	.....	2.00	.....	2.80	.....	4.45	.....	4.45	.....
Cahaba	3.75@ 4.50	.....	2.75@ 3.00	.....	3.50	.....	5.20	.....	5.20	.....
Black Creek	3.75@ 4.50	.....	2.75@ 3.00	.....	3.50	.....	5.20	.....	5.20	.....
Montevallo	6.00	.....	3.50@ 3.75	.....	4.60	.....	6.00	.....	6.00	.....

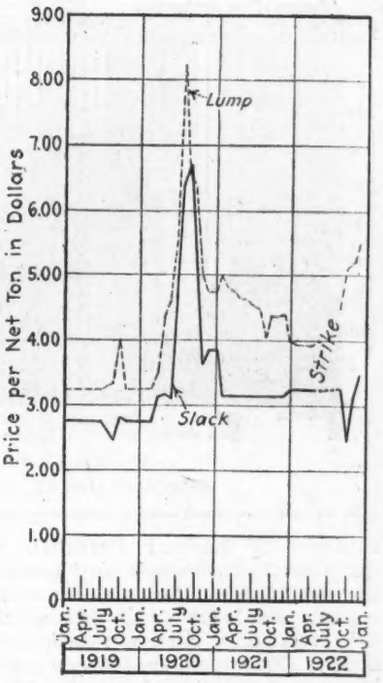
Note:—July schedule fixed by Mr. Hoover, effective July 27; September schedule fixed by state, effective Sept. 1.

until the pressure was relieved by the resumption of operations in the union fields and quotations gradually receded to government figures. Due to an increase in wages granted mine labor as of Sept. 1 the State Fuel Administration fixed a new schedule of maximum prices for steam and domestic coal to absorb the additional cost of production, which ruled for the balance of the year, the easy commercial market bringing about some decrease from the maximum prices for that grade of coal.

New development work and improvement of producing facilities during the year included the new Overton mine of the Alabama Fuel & Iron Co., in the Cahaba basin; Dixie mine of the Moffatt Coal Co., in Bibb County; the Black Creek & Valley Coal Co., and the incorporation of the Etowah Coal & Iron Co., for the development of properties in Marshall and DeKalb counties, and an extensive stripping operation in Tuscaloosa County.

Completion of the $400,000 coal terminals of the federal government at Mobile added greatly to the facilities for storing bunker and export coal and the speedy bunkering of vessels coaling at that point. Coal-carrying equipment on the Warrior River was supplemented and indications point to a more extensive utilization of water transportation during the coming year.

At this time no accurate figures on production are available but it is estimated that the output for the year will run between 16,500,000 and 17,000,000 tons, or a gain of 3,500,000 to 4,000,000 tons over 1921. Coke production is a difficult matter on which to venture an estimate, but it probably will be around 4,500,000 tons, or an increase over last year of approximately 1,500,000 to 2,000,000 tons.



SPOT PRICES F.O.B. MINES ON THE CHICAGO MARKET OF COAL FROM NORTHERN ILLINOIS

Chicago Has Feast-and-Famine Twelvemonth

Enters Strike Period Quietly Enough but "West Kentucky Riot" Upsets Everybody and Everything—Post-Strike Market Calm and Buyers' Hold-out Run to End of Poor Rail-Service Year

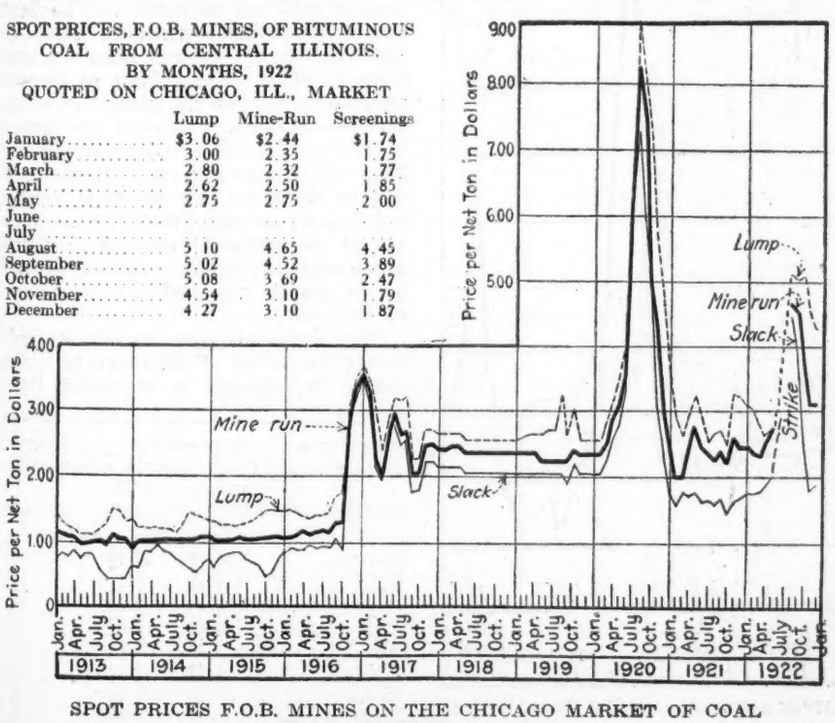
NO MORE perfect demonstration of the "feast-and-famine" character of the coal industry has been given the coal trade of Chicago than that offered by the year 1922. Opening on a quiet market that persistently refused to get excited about the approach of the general strike of April 1, the year progressed through a slight market agitation just before the strike, moved on into a summer that started stagnantly but wound up in a hectic late July bartering for western Kentucky and non-union coal whose prices bounded skyward when the country's immense coal reserve began to show bottom, entered next into an autumn that deflated whatever boom tendencies followed the close of the strike in August, and reached a grand finale in December which disappointed almost everybody who sold coal.

Most Indiana and Illinois producers, more than 100 of whom have headquarters in Chicago, finished the year fairly well out of the red, but none was rolling in wealth and it must be said truthfully that a few had not been able to recoup the losses incident to the strike. A number turned their sales organizations into jobbing agencies during the shutdown. There was more of this sort of thing than the city has seen in a long time. It was the only means of keeping a few heads above water. Regular wholesalers went through the usual experience of a strike year. They speculated at every opportunity and for a few weeks just after the middle of the strike period their plunging was rewarded with gold. But the uncertainty of the market caused enough of them to get their fingers scorched so that no 1920 "gold rush" was experienced. The slack autumn and early winter market was hard on jobbers, even though 75 per cent of the Chicago trading was on the open market.

Price restraint exercised through the latter half of the strike period by Secretary Hoover over practically all non-union coal except that to be had in western Kentucky and the general effort of railroads and big consumers to combine against bloated markets had their effect in Chicago as well as elsewhere. The organization of a "buying pool" of railroads, under advice of union operators here whose mines were down, worked fairly well for awhile. It prevented a good deal of bidding in the fields; but it did not last. The "pool"

SPOT PRICES, F.O.B. MINES, OF BITUMINOUS COAL FROM CENTRAL ILLINOIS, BY MONTHS, 1922
QUOTED ON CHICAGO, ILL., MARKET

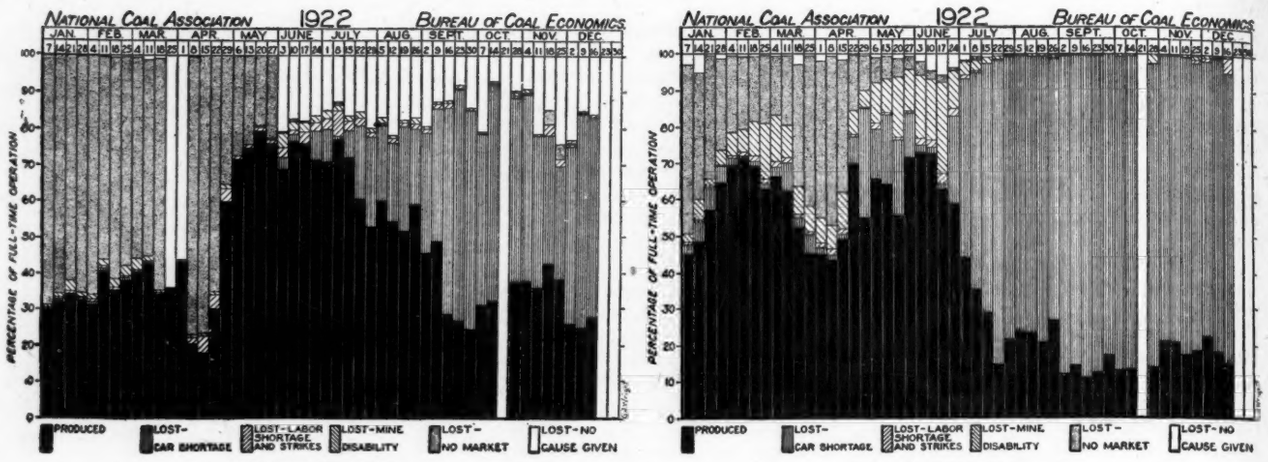
	Lump	Mine-Run	Screenings
January	$3.06	$2.44	$1.74
February	3.00	2.35	1.75
March	2.80	2.32	1.77
April	2.62	2.50	1.85
May	2.75	2.75	2.00
June			
July			
August	5.10	4.65	4.45
September	5.02	4.52	3.89
October	5.08	3.69	2.47
November	4.54	3.10	1.79
December	4.27	3.10	1.87



SPOT PRICES F.O.B. MINES ON THE CHICAGO MARKET OF COAL FROM CENTRAL ILLINOIS

SPOT PRICES, F.O.B. MINES, OF BITUMINOUS COAL, FROM NORTHERN ILLINOIS, BY MONTHS, 1922
QUOTED ON CHICAGO, ILL., MARKET

	Lump	Mine-Run	Screening
January	$3.99	....	$3.25
February	3.96	....	3.25
March	3.93	....	3.25
April	3.92	....	3.25
May	3.93	....	3.25
June		....	....
July		....	....
August		....	....
September	4.50	....	3.25
October	5.19	....	2.49
November	5.22	....	3.16
December	5.50	....	3.47



PERCENTAGE OF FULL-TIME OPERATION OF COAL MINES AND TIME LOST BY CAUSES

sundered by internal dissention and many of its members finally joined in the short but exciting rush for coal in western Kentucky which hoisted that fuel from $4.50, mine run basis, to as high as $10@$12 on the Chicago market in the last weeks of July.

By the time the strike ended, Aug. 15, western Kentucky had slumped badly, and a few Chicago men with high-priced contracts were in hot water. Then violations of contract had their turn and the market was upset generally.

At the outset of new production in Illinois and Indiana following the strike the usual sparring for position was engaged in. The companies set a high but not exorbitant circular and started in. Southern Illinois lump opened at $4.90@$5.15 when the first coal came out of the ground. Screenings were assigned a price of $4.15@$4.35. Central Illinois companies followed suit and Fourth and Fifth Vein Indiana operators began at levels 25c. above this. Standard district Illinois coal began at $1 less. These circular prices were all at least $1 above the pre-strike market of March; in the case of steam coals the increase was $2 or more.

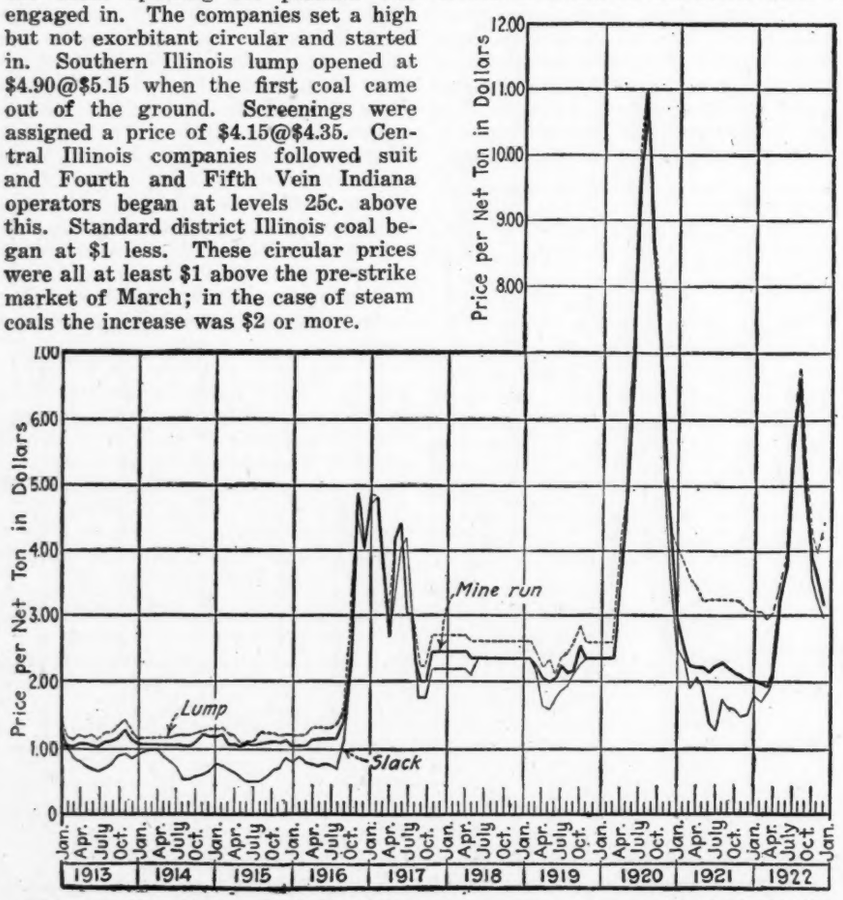
Of course by this time western Kentucky's flight was over. Coal from there at once resumed its normal practice of undercutting the market, and before autumn had advanced far western Kentucky lump was passing $4 on the way down, and remained that low to the end of the year, while its screenings dropped to $1.50. On the other hand Illinois and Indiana domestic coals went into October at a 50c. advance, though the steam market remained slow and screenings descended.

Continued warm weather and the presence of cheap western Kentucky coal which big buyers were ever ready to use as a club on the better fields of the Middle States, kept the market at low ebb after the first few weeks of operation. The advice of the government and the United States Chamber of Commerce against stocking of steam coal had a double effect in the Midwest region as generally.

When dealers' yards began to overflow and household buyers throughout this region quit purchasing in the hope that the price would drop, there settled down over the market in November another lull which shot prices to pieces except in the cases of exceptionally good domestic coals. These continued to maintain the $5.50 circular with some degree of stability. Central Illinois and Standard district domestic sizes dropped $1, however, and demand at times was so light that the fields choked with "no-bills" and large shipments were dumped out at the mercy of spot buyers who knew not the meaning of the word.

The steam market during early November softened noticeably. The best screenings Illinois produced sank to $2.15@$2.25 and those from various fields to $1.25. The volume of screenings which went on the ground at mines was considerable. But even this device to free cars for domestic coal did not keep all mines working. Because of general slackness, the domestic market did not, for awhile, absorb all the output at the reduced prices, a condition which continued in lesser degree through a cold snap or two right up to the end of the year.

This unsatisfactory condition held through a period of car shortage which cannot be regarded in any other light



SPOT PRICES F.O.B. MINES ON THE CLEVELAND MARKET OF COAL FROM THE PITTSBURGH NO. 8 DISTRICT OF OHIO

SPOT PRICES, F.O.B. MINES, OF BITUMINOUS COAL FROM PITTSBURGH NO. 8 DISTRICT, BY MONTHS, 1922, QUOTED ON CLEVELAND, OHIO, MARKET.

	Lump	Mine-Run	Screenings
January	$3.09	$2.00	$1.80
February	3.07	1.97	1.70
March	2.96	1.91	1.84
April	3.04	2.12	2.06
May	3.41	3.26	3.26
June	3.98	3.76	3.75
July	5.80	5.63	5.63
August	6.74	6.61	6.61
September	5.27	4.89	4.82
October	4.23	3.90	3.60
November	3.97	3.60	3.28
December	4.42	3.19	2.96

SPOT PRICES F.O.B. MINES, OF BITUMINOUS COAL FROM SOUTHERN ILLINOIS, BY MONTHS, 1922
QUOTED ON CHICAGO, ILL., MARKET

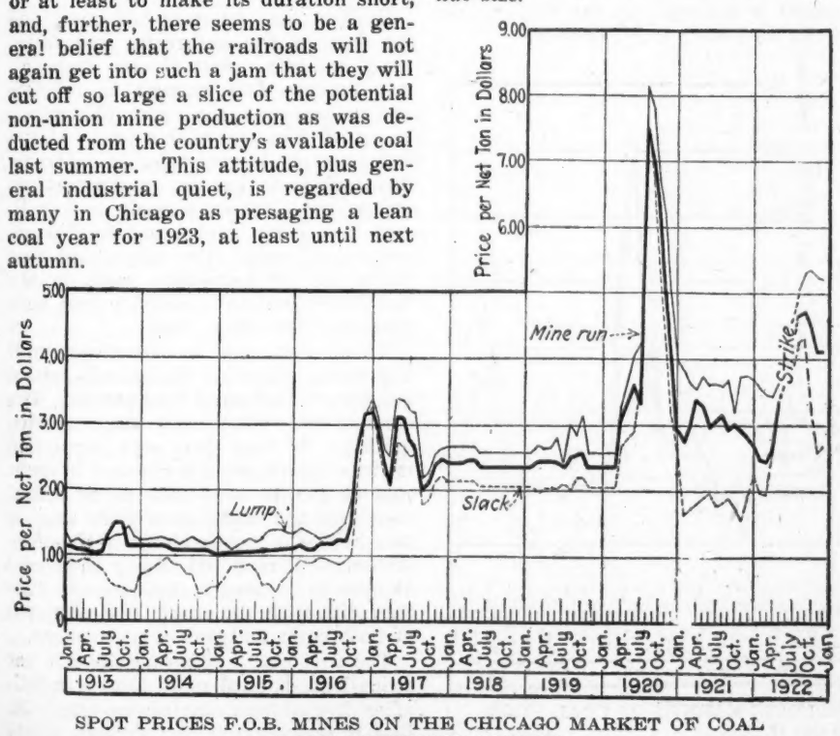
	Lump	Mine-Run	Screening
January	$3.68	$2.66	$2.21
February	3.56	2.46	1.99
March	3.44	2.44	1.95
April	3.42	2.61	2.55
May	3.62	3.32	3.38
June	....	....	....
July	....	....	....
August	5.05	4.65	4.25
September	5.31	4.72	4.30
October	5.36	4.47	3.24
November	5.24	4.10	2.57
December	5.21	4.10	2.66

than as a godsend to the operators. At the resumption of mining there were, of course, large numbers of coal cars in the mining fields ready for business. As soon as this supply was scattered to the four winds a shortage settled down immediately, not so much because of lack of cars as for general disability of railroads as they came out of their shopmen's strike.

The general and surprising autumn dullness drove the more ambitious producers and wholesalers to extend the territory dominated or affected by Chicago as no other one influence ever had done before. This extension was mainly into the Northwest, where competition with the docks became keener than usual.

These factors contributed to reduce materially the volume of coal normally handled into and through the Chicago switching district. In view of this and the fact that Cincinnati during the strike period became the coal center of the country, thanks to its proximity to heavily producing non-union fields, Chicago can hardly claim for 1922 its undisputed title as "the world's greatest coal market."

It is observed by Chicago traders that many a buyer is counting on the government to prevent a strike next spring, or at least to make its duration short, and, further, there seems to be a general belief that the railroads will not again get into such a jam that they will cut off so large a slice of the potential non-union mine production as was deducted from the country's available coal last summer. This attitude, plus general industrial quiet, is regarded by many in Chicago as presaging a lean coal year for 1923, at least until next autumn.



SPOT PRICES F.O.B. MINES ON THE CHICAGO MARKET OF COAL FROM SOUTHERN ILLINOIS

St. Louis Observes Need for a "Coal Moses"

Year's Wilderness of Uncertainty Kept Everybody Wandering —Retailers and Operators Make Little Money but Some Jobbers Get Rich—Year Effects Many Distribution Changes

BY E. J. WALLACE

THE experiences of 1922 in the St. Louis market prove only one thing: The Moses of the coal industry is yet to appear.—And he is badly needed. All tried and trusted signs and omens fail in the battle of the workers and the "worriers" as the coal industry stands now. They failed so often during 1922 that the luck of the year was oddly spread around. The year has not been a good one for retailers. The jobbers had the time of their somewhat checkered careers and made money. Among the operators, some fattened and some didn't in playing the St. Louis market.

Illinois coal lost out in Missouri. In the southeastern part of the state western Kentucky and Alabama got a good foothold along the Frisco lines. This same applies to eastern Arkansas and eastern and northern Louisiana. No more Illinois coal moves to Texas, with an exceptional car here and there. Kansas coal is getting in solid in southwestern Missouri, with Alabama a close second. All over Missouri little "gopher" hole mines have opened up and some pretty good strip mines. This tonnage has put Illinois coal out of some cities entirely.

Arkansas coal failed to reach St. Louis in 1922, and diminished in tonnage to other Missouri points, outside of Kansas City and St. Joseph. Less than 50 per cent of the normal volume of hard coal came through from Pennsylvania. Alabama byproduct coke moved in to replace anthracite in chestnut size.

As usual, the new year opened in St. Louis and surrounding country under trying conditions. The market had been soft as the year closed and warm weather almost put the finishing touches on what market remained. The only coal moving was the cheapest kind, although there was an abundance of everything in fuel available.

The local retail prices were: Carterville, $7.50@$7.75; Mt. Olive, $6.50; Standard, $4.75@$5; smokeless, $12.25; anthracite stove, $15.75; anthracite chestnut, $16; anthracite grate and egg, $15.50.

Coal at the mines was: Carterville lump, $3.25@$4.05; Carterville egg, $3.25@$4.05; Carterville No. 1 and 2 nut, $2.75; Carterville mine-run, $2.75 @$3; Carterville screenings, $1.90@ $2.25; Mt. Olive lump, $2.75@$3.50; Mt. Olive mine run, $2.25@$2.75; Mt. Olive screenings, $1.85@$2.10; Standard lump, $2.75@$3; Standard mine-run, $1.90; Standard screenings, $1.25@ $1.50.

The rate on Standard and Mt. Olive to St. Louis was $1.27½; Carteville, $1.48½, and Duquoin, $1.35. East St. Louis and Granite City were 29c. less than this.

Country call was quiet. Dealers everywhere had full yards and steam plants were pretty well stocked. The railroads had started storage piles and there was no scarcity of fuel anywhere.

Up to Jan. 1 the temperature at no time had been under 26° and it was not real winter weather for St. Louis and domestic users bought only as they needed, in small quantities. With February colder weather prevailed, and this helped a little, but nothing like a seasonable winter prevailed.

Storage coal went in slowly and with no alarm. For once the coal buyer had the situation completely in his hands. He played the game as he cared to and the coal trade was helpless. On April 1 the strike came on. Almost everyone figured a 60 to 90 day suspension. They stored accordingly except a few railroads, whose blindness to take a 90-day chance was costly later.

About May 1 the railroads began to buy freely of western Kentucky coal at from $2.10 to $2.40 for mine-run. By May 15 the price had advanced $1. This was followed by a slight slump, but July 1 saw western Kentucky mine-run at $4.25, lump at $4.50 and screenings at from $4.25 to $4.50. In July Alabama coal began to move in at from $2.25 for mine-run up to $3.50 on screened coal, with a rate of $3.67. The Kentucky coal had a rate of about $1.87. The last of over 100,000 tons of coal stored on the ground at East St. Louis and other places was cleaned up. This last lot sold at over $6 mine basis.

SPOT PRICES, F.O.B. MINES, OF BITUMINOUS COAL FROM STANDARD FIELD OF ILLINOIS, BY MONTHS, 1919-1922
QUOTED ON ST. LOUIS, MO., MARKET

	Lump	Mine-Run	Screenings
January	$2.72	$1.91	$1.36
February	2.79	1.92	1.09
March	2.55	1.86	1.19
April	2.65	1.85	1.57
May	3.15	2.75	2.75
June	....	....	....
July	....	....	....
August	3.90	3.40	2.90
September	4.74	3.64	3.11
October	4.37	3.16	2.13
November	4.00	2.55	1.35
December	4.21	2.26	1.39

In July the railroads began to get jammed up on account of the shopmen's strike and a serious several weeks followed. A little Missouri coal from Moniteau County came in as a lifesaver from then on until the end of the strike, but in small lots.

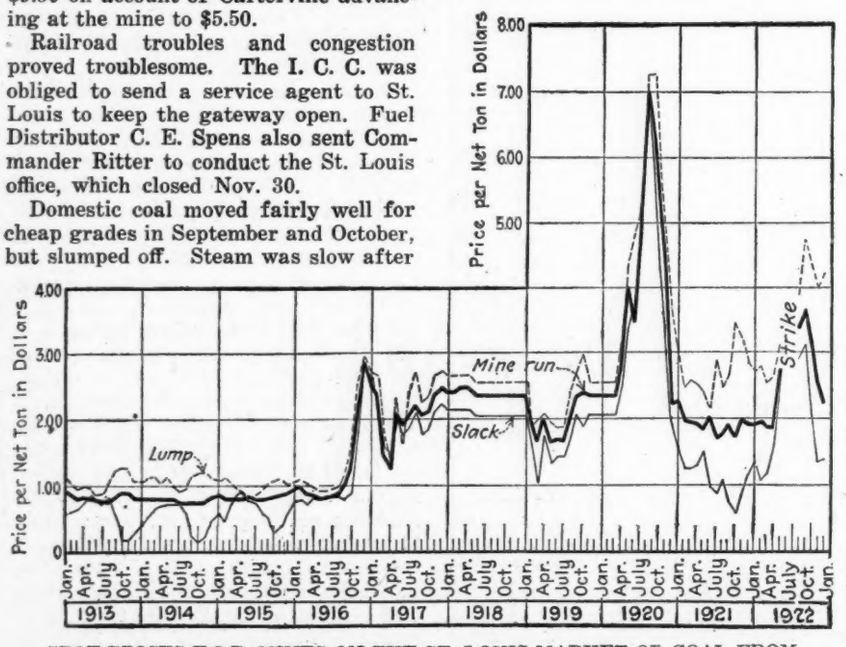
In August the question of coal for hotels and other domestic users became a problem, resulting in a fuel distributing commission for Missouri with city and county committees. The situation became serious and resulted in some plants suspending though public utilities kept going. Coal was brought up from western Kentucky on barges for the first time in years.

With mines resuming on Aug. 23 the situation eased up rapidly. Buying in St. Louis was only for actual needs, for there was a good tonnage of Alabama in transit at $5@$8 at the mine for mine-run and between 1,500 and 2,000 cars of western Kentucky at $7@$8, and some as high as $11. Standard 2-in. lump opened up at $3.50@$4, with all other sizes about the same. Mt. Olive for St. Louis was $4 for domestic sizes. Outside shipments ranged to $5. Carterville averaged $5 for domestic and steam sizes. Retail prices averaged: Standard, $6.75; Mt. Olive, $7.50, and Carterville, $9. These prices remained for the year excepting Carterville, which advanced in September to $9.50 on account of Carterville advancing at the mine to $5.50.

Railroad troubles and congestion proved troublesome. The I. C. C. was obliged to send a service agent to St. Louis to keep the gateway open. Fuel Distributor C. E. Spens also sent Commander Ritter to conduct the St. Louis office, which closed Nov. 30.

Domestic coal moved fairly well for cheap grades in September and October, but slumped off. Steam was slow after the first few weeks of operation following the strike. Storage at the close of the year was well under way in a most intelligent, well-planned movement by the big buyers. They kept the market down by slow buying.

From Nov. 1 the market was in bad shape and prices weakened. Standard 2-in. lump went down to $2.50, 6-in. lump to $3.25, steam nut and egg $2.25, mine-run $2.25, screenings $1 to $1.25. Mt. Olive held its price. Carterville slipped only by the independent operators. The association shippers held to the $5.50 domestic size price. Screenings in that field got down to $2 at times. In December there was a comeback on Standard, with the colder weather. The first cold weather came on Dec. 11, with a temperature of 20 deg. above, and no snow. The winter looked as if it would be an open one. Dealers' bins were loaded by Dec. 1 and no one buying. The railroads began to store up and public utilities were in good shape.



SPOT PRICES F.O.B. MINES ON THE ST. LOUIS MARKET OF COAL FROM STANDARD FIELD OF ILLINOIS

At Head-of-Lakes 1922 Exactly Reverses 1921

Season Opens with Docks Full—Public Counts So Heavily Upon Stocks That It Refuses to Buy Until Fall Famine Fright Spreads Trouble—Real Shortage Threatens Before Opening of Navigation

BY S. M. CHAMBERS

A GOOD idea of 1922 at the Head-of-the-Lakes can be gained by merely reversing the reports of everything that happened in 1921. The two years are as diametrically opposite as could possibly be. The Northwest faces almost surely a coal shortage before the opening of navigation in the spring. Anthracite is already gone, and users are turning to substitutes. Bituminous coal seems to be plentiful at present, but there is little doubt that the coal administrator at St. Paul will enlarge the territory served by Duluth, and that stocks will be depleted before the summer comes.

Until the opening of navigation this year there was little to feature the coal market at the Head-of-the-Lakes. The only noticeable signs of the general trend were sags in the market. Prices of both bituminous and anthracite fell off steadily from the first of the year to the opening of navigation. This was caused in the main by the well-stocked docks at Duluth and Superior.

The oversupply was due to the failure of the usual demand to materialize rather than a poor estimate of supply. The dock men expected the mines of the Mesaba Iron Range to operate full blast and consume much fuel; and the mines were idle the greater part of the summer.

Even when the strike became a reality the gravity of the situation was not appreciated. The docks were still well filled and buyers refused to be worried. Prices, however, did not fall further, and the market showed signs of strengthening.

Because of the coal on hand, Duluth became the supply center of territory as far away as Lake Michigan and even shipped coal to lower Lake ports. This was unprecedented and there began to be talk of a shortage at the Head-of-the-Lakes. A vast amount of coal also was shipped by rail to out-of-territory points.

By this time summer had come and the demand for anthracite had fallen away entirely. Bituminous, however, was moving fast enough to mystify and alarm even the most phlegmatic buyer. Prices rose with a jump. Local and territory buyers tried to make up their minds to get in on the market, and before they were ready to buy it, coal was being meted out to "steady customers" only. The only thing that staved off an industrial panic in the Northwest was that industry had been quiescent for some time.

Things continued in this strain until September, when the strike was settled and the first cargo of coal arrived. The demand for bituminous was satisfied quickly. At first there was regulation in the shipping, but the carriers brought coal to Duluth at a rate never before seen, and the docks soon filled up. It was hardly a month and a half before industries were urged to buy their coal at once to prevent a dock tie-up. This they did, with the result that dispatch of both boats and cars was excellent.

The first cargo of anthracite did not reach Duluth until more than a month after bituminous started coming. At first it was thought that enough would

SPOT PRICES, F.O.B. MINES, OF BITUMINOUS COAL FROM MT. OLIVE DISTRICT, BY MONTHS, 1922 QUOTED ON ST. LOUIS, MO., MARKET.

	Lump	Mine-Run	Screenings
January	$3.21	$2.50	$1.66
February	3.22	2.50	1.42
March	2.87	2.43	1.66
April	2.87	2.50	1.75
May	3.00	2.50	1.75
June	....	.....	....
July	....	.....	....
August	5.00	4.63	4.40
September	4.66	3.89	3.62
October	4.45	3.18	2.50
November	4.00	3.44	1.97
December	4.06	3.50	2.09

arrive to satisfy the needs of the Northwest. It soon became evident, however, that this was impossible.

The real pinch in anthracite did not come until the latter part of November, with the first cold. Householders failed to buy until the last moment, expecting a drop in prices, which were fixed the same as last year. A large portion of available stocks of anthracite was held, however, for Duluth consumption, and not until the latter part of December was it utterly impossible to get hard coal.

One of the features of the shortage of anthracite is the development of the hard- and soft-coal briquet industry at Duluth. There are now two plants each producing 600 tons of briquets daily.

Approximately 3,250,000 fewer tons of bituminous coal were unloaded here than in 1921 and about 1,250,000 tons less of anthracite. Normally receipts run about 2,000,000 tons of hard coal and 8,500,000 tons of bituminous.

From all appearances the Northwest will come to the opening of navigation in 1923 with not a free ton of anthracite or bituminous on the docks, as in 1921.

Many Difficulties Beset Minneapolis Trade

Dock Interests Forced to Buy Coal They Do Not Want and Then Take Losses When Demand Slumps—All-Rail Competitors Cut In Deeply—Substitutes for Anthracite Flood Market

BY G. A. WELCH

IN THE Minneapolis region the year just closed opened with a depressed and inactive sale for all grades of coal. Even when the approach of April 1 made it certain that there would be a strike and a suspension of all coal production, very little interest was aroused. Buying showed now and then a little spurt in some sections, but the tonnage placed was small. During the season of navigation, the docks on Lake Superior had been stocked to a considerably greater extent than was necessary.

The strike in both anthracite and bituminous fields seemed to be but a joke to the Northwest. Very little coal would be needed between April 1 and Sept. 1, and that was ample time for operators and miners to fight out their differences and to get back to production with costs to consumers down considerably. There seemed to be no doubt in the mind of any buyer about the reduction. The owners of the coal carried over on the docks made futile efforts to sell it during the spring. No one wanted it. It hardly could have been sold at a discount, let alone the ruling price. And the weeks slipped by with the coal completely neglected.

Finally some of the railroads operating from Chicago awoke to the fact that the coal on the docks on Lake Superior was a "good buy" and a number of sales of considerable tonnage were made. This waked some of the Northwestern roads and they came into the market. The latter had been offered the same coal earlier. A little quiet buying on behalf of public utilities also ensued. And when autumn came, with still no coal being produced, the surplus on the docks was found to be pretty well absorbed.

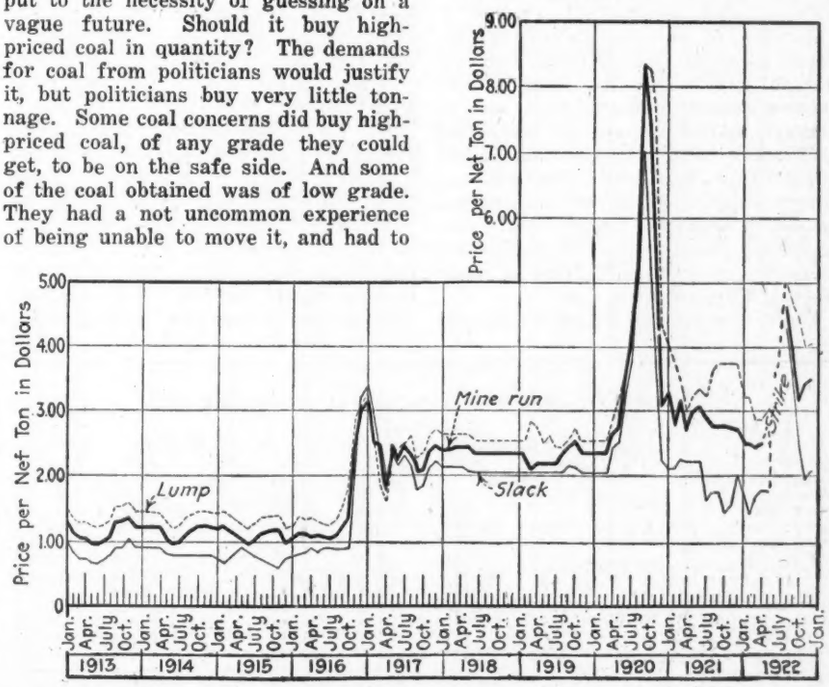
Then came the annual hullaballoo about the urgent need of fuel for the Northwest. The politicians worked the subject threadbare. There were consultations, conferences, surveys, demands and entreaties, commissioners, allotments, priorities and incantations. But they produced no coal. The non-union miners were doing all that they could do, but it was hardly to be expected that all other sections would subside in their demands and let the Northwest get a new supply under a fair-priced arrangement, when several million tons of coal had been ignored for months.

The coal trade of the Northwest was put to the necessity of guessing on a vague future. Should it buy high-priced coal in quantity? The demands for coal from politicians would justify it, but politicians buy very little tonnage. Some coal concerns did buy high-priced coal, of any grade they could get, to be on the safe side. And some of the coal obtained was of low grade. They had a not uncommon experience of being unable to move it, and had to take a loss. Other coal of satisfactory grade but high price had to take some loss as well.

The dock trade learned a lesson from previous years, and confined its tonnage to narrow totals, so that at the end of the season the soft coal on the docks was perhaps two-thirds of that of a year previous. Dock interests encountered a sharper competition this season than ever before. The all-rail shippers bombarded the market with surplus coal. Many producers have regular officers in this district, and so their transit coal is watched carefully enough to guard against much flooding of market. But there are other concerns which sent coal into this district and dispatched a salesman to dispose of it, without the slightest established trade to depend upon. Some heavy losses were taken as a result.

Competition by rail shippers with the dock trade has been more than keen; it has been militantly aggressive. Aided by favorable freight costs rail traders have pushed into a wider trade area than ever before, and claim that they will go farther yet.

As to hard coal, it nearly resembles the story of snakes in Ireland. The receipts have been possibly one-third of last year. There was some hard coal carried over from last spring, mainly of undesirable sizes. People have been resorting to substitutes and the need for hard coal has been cut down sharply, but the receipts are far below the allotment, which was to be about 700,000 tons. If the docks receive 400,000 tons they will do well. This will be increased by some all-rail shipments, but the tonnage will not be so great as had been expected. There is talk of shipping 300,000 tons of hard coal all-rail. This probably would leave a surplus, from the way the demand has been running.



SPOT PRICES F.O.B. MINES ON THE ST. LOUIS MARKET OF COAL FROM THE MT. OLIVE DISTRICT OF ILLINOIS

Milwaukee Docks Troubled Month by Month

Glutted Market from January to June is Followed by Wildest Speculation and Upset Trading Conditions—Quality of Pool Coal Harassing and Rail Competition Keen—Hard Coal Short

By H. Bleyer

THE year 1922 was evidently unsatisfactory to the Milwaukee coal trade. The coal business normally has a full measure of troubles, both major and minor, but when these are supplemented by strikes which seriously interfere with supply and distribution, the situation becomes nerve-racking. Car supply was poor and undependable at all times. And to cap it all, the coal man, after frenzied efforts to obtain supplies at any reasonable price, was confronted by a disinterested and dissatisfied public which stubbornly held back in the hope of obtaining lower prices.

The market was glutted with coal from January until the end of June. During the two following months coal was practically unobtainable. When mining was resumed, wild speculation at the mines made business uncertain and hazardous, especially to jobbers, because of a tendency on the part of consignees to refuse coal billed to them under a fluctuating market and to insist on lower prices.

Quality Falls Off

The Eastern bituminous coal received during and after the strike was not up to its normal standard of quality, and as a result, dock men who contracted to deliver the coal with a specified volume of thermal units, were compelled to seek releases from such obligations. The government pooling system, which was put in operation when coal began to move, made quality discrimination impossible.

Because of these complications incident to marketing Eastern coal, increased quantities of Illinois and Indiana coal have found their way to Western markets heretofore dominated by Eastern coal. Continuation of the trying experiences which Western consumers have been forced to struggle against in procuring Eastern coal eventually will result in the loss to Eastern operators of a large portion of their present Western trade.

There is seemingly an ample amount of soft coal on the docks to last until another season with reasonable receipts by rail. The stock of hard coal, however, is far from sufficient, and the railroads will have to be depended upon to keep up the supply during the remaining winter months.

Anthracite has not varied in price throughout the year. Soft coal, including Pocahontas, however, has been advanced from time to time, and is now averaging $2@$2.50, higher than at this time last year.

Following are the current prices of coal in the Milwaukee market, compared with those of last year at this time:

BITUMINOUS COAL PRICES

	Jan. 1923	Jan. 1922
Pitts. Hock. & Yough.	$10.25	$7.75
Pile-run	9.50	7.25
Screenings	9.00	6.75
West Virginia screened	10.25	8.00
Pile-run	9.75	7.50
Screenings	9.75	7.00
Pocahontas screened	13.75	11.50
Mine run	10.25	7.75
Screenings	9.75	7.25
Smithing	11.75	8.00
Kanawha gas mine-run	....	7.50
Ill. and Ind. screened	10.25	8.00
Pile-run	9.75	7.50
Screenings	9.75	7.00
Coke, large sizes	16.00	15.00
Pea and nut	13.00	12.00

Carrying charge 75c. per ton on coal. Nothing on coke.

ANTHRACITE

Egg	$15.75	$15.70
Stove	16.00	16.10
Nut	15.95	15.95
Pea	14.00	14.10
Buckwheat	11.50	11.50

Carrying charge 75c. per ton.

Kentucky Has Labor Peace but Market Hubbub

Western Field's Fortunate Two-Year Contract Enabled It to Produce Tremendously—Wild Buyers Run Prices Up to $11.50—Non-Union Field Suffers for Cars—Transport Improves for 1923

By A. W. Williams

THE season of 1922 in Louisville and the Kentucky fields proved unusual in many ways; in fact it probably will be remembered by the coal trade for years to come. The year's problem was to get coal transported rather than to find a market. The great coal strike stimulated Kentucky to tremendous effort, causing less labor disturbance there than in any other state in the Union.

First—western Kentucky, in April, 1921, figuring that there would be a nationwide strike about April, 1922, used brains and made a new union contract running two years and with a no-strike clause. When the rest of the country walked out in the spring of 1922, the union in western Kentucky stuck to its agreement. Demand resulted in capacity production and it was merely a question of getting enough cars. The railroads came to bat in great shape, and tonnage records were established in western Kentucky which may hold for years. The L. & N. handled 66,415 cars in May alone as against 52,717 for the best previous month it had ever had. Little hillside mines with groups of small trucks co-operated in rapid loading of cars, and coal moved out in great quantities, some of it at high prices.

Second—Most of the eastern Kentucky field is non-union, and during the strike period proceeded to mine and ship just as much coal as the ability to obtain cars made possible. Eastern Kentucky trackage facilities always have been inadequate for heavy movement in rush times, but during the strike period a large tonnage was moved.

The strike had a marked effect on Kentucky. Tonnage increased and prices climbed slowly, due to the fact that big consumers were well stocked, domestic demand was at its lowest ebb, and buyers did not figure the strike would last. On March 29, 1922, Kentucky prices, f.o.b., mines were:

Western Kentucky

Lump	Mine-Run	Screenings
$2@$2.25	$1.75@$2	$1.60@$1.75

Eastern Kentucky

Harlan

Lump	Mine-Run	Screenings
$2.25@$2.40	$1.65@$1.70	$1.35@$1.60

Hazard

Lump	Mine-Run	Screenings
$2@$2.25	$1.50@$1.60	$1.25@$1.35

In late April prices started climbing, as Lake movement commenced and steel mills and big industries placed buyers in the field. In late April all coals were selling $2.50@$3, mine run, in all sections of the state. On May 10 the price was $3@$3.25. Operators began quoting all grades at the same price, and made very little prepared coal. Prices slowly advanced in June when news came of the threatened rail strike and in July ran at the start at around $3.50 @$4.50. They advanced rapidly in mid-July, ranging $4@$5.50 on July 12,

RECEIPTS OF COAL AT MILWAUKEE BY MONTHS IN 1922

(In Net Tons)

Month	By Vessel—Hard	By Vessel—Soft	By Car Ferry—Hard	By Car Ferry—Soft	By Rail—Hard	By Rail—Soft	Grand Total
January	....	....	7,113	15,394	496	47,424	70,427
February	....	....	13,599	35,216	....	36,335	85,150
March	....	....	30,769	47,146	....	36,853	114,768
April	700	107,609	9,546	27,858	....	26,594	172,307
May	....	195,251	1,965	5,340	....	24,250	226,806
June	....	303,401	2,455	5,668	129	23,868	335,392
July	....	167,499	1,809	7,619	....	26,342	203,269
August	....	78,852	2,878	19,232	34	22,886	123,848
September	....	438,343	1,560	11,816	50	38,806	490,575
October	141,414	654,945	12,634	34,546	120	56,842	900,501
November	128,139	331,765	12,162	31,463	....	40,840	544,369
December	89,817	53,242	12,130	31,366	50	48,985	235,590
Total	360,070	2,331,407	108,620	272,664	879	428,805	3,502,445
Total 1921	1,023,645	2,574,374	141,736	253,778	3,244	794,934	4,791,711
Decrease	663,575	242,967	33,116	....	2,365	428,805	1,289,266
Increase	....	....	....	18,886	....	....	....

*Estimated

$6.50@$7.25 July 18, and on July 22, the high-water level, western Kentucky was quoting $11@$11.50 and selling it freely in Chicago, Indianapolis, St. Louis and other big consuming points. On the same date eastern Kentucky was asking $9@$10.50. That was a wild week, with prices jumping so fast that jobbers were caught short on accepted business before they could fill. Everyone was playing for quick advances and tonnage was sold day to day at time of shipment only. Buyers were buying bills of lading and nothing else.

With the blowing up of the trainmen's strike prices began to fall, but threatened rationing of cars by the Hoover conference was the chief forcer of lower prices. Between July 22 and July 26 prices dropped from $9@$11.50 a ton to $6@$7.50. Since then prices have slumped some, especially in western Kentucky, which got down to $3.50 for lump, but the market generally was much higher than in the early spring.

Kentucky operators were never able to agree with the Hoover plan of price control or any other plan, objecting principally because car supply grew so poor. Operators say their expenses have been so great that they have not made much money this year. Eastern Kentucky has had a fair year in spite of the railroad tie-ups such as paralyzed traffic through the important rail junction at Corbin.

River transportation was at the lowest ebb in history, mainly because of low water. For the first five months a total of 20,861 tons reached Louisville by water, as against 23,106 tons for the corresponding months of 1921. The 1921 total was 57,311 tons. This year the total tonnage probably will fall short of 30,000. A few small shipments of coal from the Beattyville district on the Kentucky River have come in, but the big West Virginia shipments were cut off. By use of artificial waves West Virginia tonnage got as far as Cincinnati.

The retail trade has had a mean year. In 1921 the retailers stocked their yards. A mild winter and dull industrial conditions resulted in generally poor demand and when mine prices broke badly in the winter the "snowbirds" forced retailers to lower prices and yards were unloaded at a loss in many instances. The retailers refused to stock coal at high prices, as a result of the bitter experiences of 1921.

The outlook is generally better for the coal trade than it was at this time last year. Stocks in industrial as well as domestic hands are smaller, in spite of heavy production. Buying is on a hand-to-mouth basis and consumption is larger, with the result that prospects are for a fairly steady market to spring, with the possibility of a rapid advance if the threatened strike develops. River transportation outlook is better, as there is more interest shown and facilities are improved.

Railroad conditions are improving. Big car and motive-power orders have been placed by the L. & N., C. & O., Illinois Central, Monon, N. C. & St. L., and other roads. The L. & N. is spending $52,000,000 in improvements, nearly $30,000,000 having been contracted for this year, including enlarged sidings, terminals, double tracking, etc., with a considerable amount of work done in the Harlan and Hazard fields, which regions for years have suffered for want of cars.

Production capacity has been enlarged far more rapidly than railroad capacity. The Hazard field ten years ago was just getting started, and the same thing was true of the Harlan, Elkhorn and other eastern Kentucky fields.

SPOT PRICES, F.O.B. MINES, OF BITUMINOUS COAL, FROM WESTERN KENTUCKY, BY MONTHS, 1922
AVERAGE OF QUOTATIONS ON THE LOUISVILLE AND CHICAGO MARKETS

	Lump	Mine-Run	Screenings
January	$2.72	$1.85	$1.23
February	2.57	1.86	1.40
March	2.40	1.80	1.62
April	2.34	1.94	1.94
May	3.02	2.97	2.97
June	3.75	3.74	3.74
July	6.56	6.59	6.59
August	5.92	5.87	5.80
September	4.66	4.25	4.06
October	5.16	3.14	2.75
November	4.42	2.45	1.65
December	3.92	2.52	1.82

Indiana Ends Year with Sigh of Relief

Coal Men Worried, However, with Check-Off Dispute Auguring Ill—Not Much Money Made by Hoosiers in 1922—Weakening Market Runs Well into Midwinter

By Earl Bullock

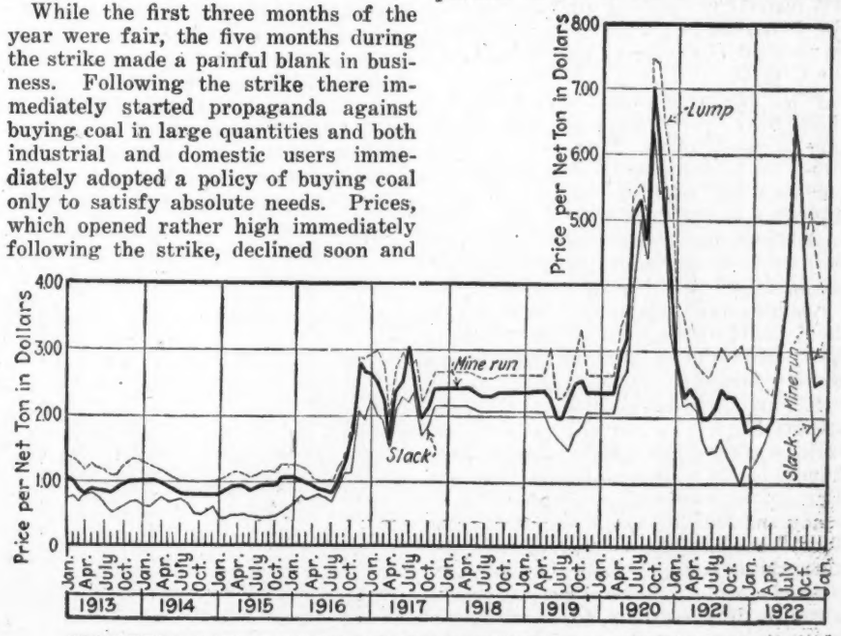
IT IS with a sigh of relief that the coal producers of Indiana see the hectic period of the last twelve months fade into a new year. The majority of the trade in Indiana, however, can't see anything particularly bright for at least the first six months of 1923. At any rate, it can be no worse than the first six months of the year just closed. The end of 1922 augured ill for the future with the union heckling the operators of Indiana with threats of a strike because of their first refusal to permit the check-off of the strike assessment of $4 per capita to reimburse the strike fund of the international organization so that another strike can be staged next April.

What with declining prices, decreased consumption, a strike lasting for months, a car shortage when business picked up and no orders when cars got plentiful, little individual strikes and what not, the last ten months have been anything but a good time for the local trade.

While the first three months of the year were fair, the five months during the strike made a painful blank in business. Following the strike there immediately started propaganda against buying coal in large quantities and both industrial and domestic users immediately adopted a policy of buying coal only to satisfy absolute needs. Prices, which opened rather high immediately following the strike, declined soon and continued on a general downward trend. There have been slight periods of strength and once or twice some trifling rises in quotations, but on the whole the price level has declined so far as Indiana coal is concerned.

Some operators say the rapid spread of the central-power-plant idea is having a great deal to do with the situation. They all admit there is something wrong, especially so far as the steam-coal market is concerned, and they cannot entirely explain the slow market. Since the end of the strike the railroads have taken more steam coal than ever before, showing conclusively that goods are being moved and the manufacturer is using power of some sort. It is a well-known fact that the manufacturer has no large reserve and it also is known that between now and April, when local operators expect another strike, the manufacturers and utilities cannot build up tremendous reserves.

The local trade apparently has a large portion of praise for President Hard-



SPOT PRICES F.O.B. MINES ON THE LOUISVILLE MARKET OF COAL FROM WESTERN KENTUCKY

ing's price policy. They say that this is one development due to the strike that has worked out. There is not so much praise, however, for the fact-finding part of the presidential program. Many of the most prominent operators in the state declare the operators do not need a fact-finding commission—they know the facts, as do the miners. The need as they see it is for something that will unravel the facts into some program which will eliminate the annual recurrence in April.

In case of a strike next April the trade in Indiana looks for an immediate advance in non-union coal. It was two months last year before coal from these mines took any jump, but there were reserves at that time and there may be little or none if another strike is called.

Early Market Dullness and Later Rail Trouble Hampered High-Volatile Output

Increased Production in Logan Partly Offset by Losses in Kanawha and Coal River—Kenova-Thacker Fared Better Than Other Fields—Kentucky Mines on C. & O. Double 1921 Yield

By J. W. Weir

THE history of conditions during 1922 in the southern high-volatile area of West Virginia and in northeast Kentucky and southwest Virginia is to be divided into two periods, the first lasting from Jan. 1 until about July 1 and the second covering the remainder of the year. The first period was one of market inactivity and the second one of transportation disabilities so serious as to materially cripple the mines. As a result it is doubtful if actual production in the three high-volatile fields of southern West Virginia was much above 23,500,000 tons. That did represent, however, a marked increase in the output of the Logan district, offset in part by losses in Kanawha and Coal River.

The most serious factor at any time during the year was car shortage, not so much in evidence, however, during the first few months, owing to the poor demand existing in that period. From July until the end of the year mines at no time were afforded sufficient transportation facilities to produce more than half of capacity and during the last quarter of 1922 car supply most of the time was not equal to more than 30 per cent of allotment, particularly on the C. & O.

When the year began market conditions were worse than at any other time in recent years. There was no sale either for domestic or for fuel for steam purposes and mine-run was not bringing much in excess of $1.25 a ton. The coal strike had been in effect for several weeks before mines felt the stimulus and even then buying was confined to utilities, railroads and the steel mills, many consumers appearing to feel that they could obtain all the coal they wanted whenever it was needed.

It was not indeed until after the rail strike began to curtail production seriously, after the middle of July, that buyers began to be at all apprehensive. During the Lake season mines had a ready market for their output in the West but with the closing of navigation there was a slump in Western markets and for several weeks prices steadily dropped, only to be stiffened by a sudden resumption of buying in Eastern markets early in December, as a result of which mine-run reached about $3.50 a ton, with prepared grades quoted $5@$6. During the latter part of 1922 in fact $3.50 a ton seemed to be the average price for mine-run.

After producing at the rate of over 16,000,000 tons per year, the railroad shopmen's strike brought an acute car shortage, the worst ever experienced in the Logan district, and production dropped below 800,000 tons per month, as shown in the following table:

MONTHLY PRODUCTION, LOGAN DISTRICT
(In Net Tons)

January	1,065,830
February	1,178,940
March	1,330,550
April	1,277,420
May	1,603,630
June	1,641,060
July	785,430
August	764,450
September	685,140
October	697,720
November	761,320

Exceedingly poor demand during the early months of 1922, partial suspension of operations at mines during the coal strike and execrable transportation facilities were responsible for just about cutting in two the output of the Kanawha and Coal River fields. Market conditions were far from conducive to large loadings even after the coal strike had been declared. When the strike order became effective, some of the large companies succeeded in resuming production on a non-union-basis, especially south of the Kanawha River.

SPOT PRICES, F.O.B. MINES, OF BITUMINOUS COAL FROM KANAWHA DISTRICT, BY MONTHS, 1922
AVERAGE OF QUOTATIONS ON COLUMBUS AND CINCINNATI MARKETS

	Lump	Mine-Run	Screenings
January	$2.73	$1.74	$1.20
February	2.62	1.64	1.34
March	2.40	1.55	1.37
April	2.36	1.69	1.50
May	3.25	2.96	2.72
June	3.45	3.22	3.09
July	5.06	4.82	4.67
August	5.97	5.71	5.50
September	6.10	5.71	5.5
October	6.40	4.85	4.37
November	5.90	3.92	3.57
December	5.40	3.17	2.92

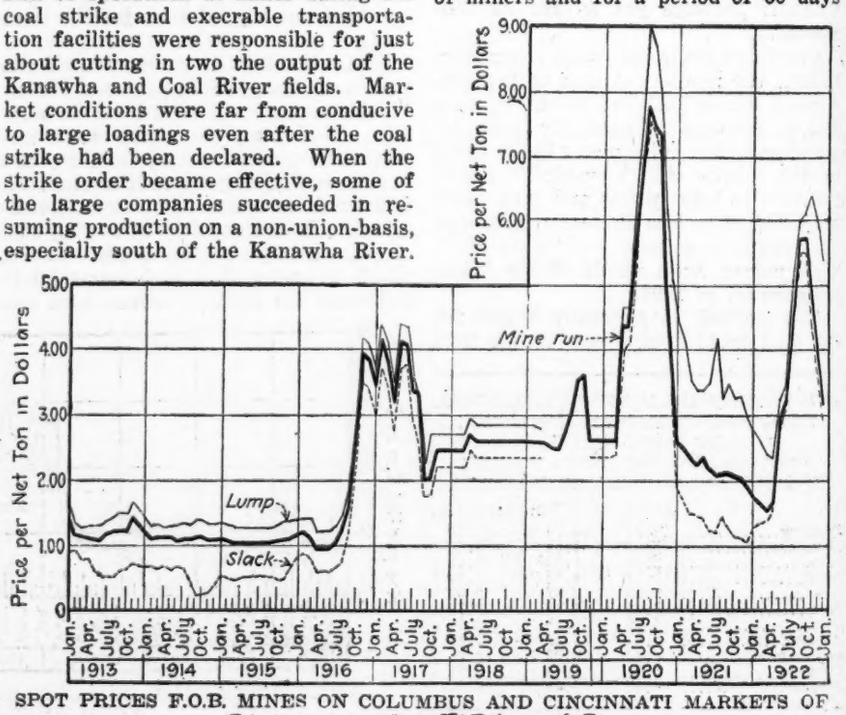
Such companies as had operated during the strike declined to make any agreement with the union when a settlement was effected.

The Kenova-Thacker district fared somewhat better than other high-volatile regions. Most of the time production was above 100,000 tons a week, so that for the year as a whole the volume of coal mined and shipped was not far from 6,000,000 tons. For a time early in 1922 it was not possible to make heavy shipments owing to a poor market. But with a shortage in some of the Western markets after the coal and rail strikes had become effective, production was speeded up.

PRODUCTION IN SOUTHWEST VIRGINIA
(In Net Tons)

January	613,328
February	630,821
March	754,588
April	726,796
May	991,745
June	1,068,501
July	792,185
August	838,604
September	725,937
October	853,330
November	800,000
	8,796,345

There was a depressed market during the first four months of 1922, which tended to curtail production in southwest Virginia. Effective with the strike of miners and for a period of 60 days



SPOT PRICES F.O.B. MINES ON COLUMBUS AND CINCINNATI MARKETS OF COAL FROM THE KANAWHA FIELD

thereafter, production increased at a rapid rate. Beginning July 1, however, output underwent a decline, due to serious car shortage.

It is somewhat difficult to forecast what may be expected during 1923 because so many factors enter into the situation, the first of which is overdevelopment of the industry. Production is going to be restricted to the ability of the railroads to furnish cars, but it is natural to assume that there will be considerable improvement in that respect. Unless there is a marked increase in consumption, market conditions, as viewed by some Virginia operators, do not at this time look encouraging, unless there should be another miners' strike on April 1.

Approximately twice as much coal was produced by the mines on the C. & O. in Kentucky during 1922 as during the preceding year, 1922 production being between 3,500,000 and 3,700,000 tons as against 1,850,000 tons for 1921. Market conditions were much better than in 1921, except during the early months of the year. The most serious period during the whole year was the last six months, when it was not possible to produce more than 100,000 tons a week, or about 30 per cent of capacity, owing to a scarcity of cars and poor motive power. Even when the demand in other sections waned late in the year and when prices in other fields dropped northeast Kentucky producers had no difficulty in finding buyers for mine-run at $3.50 @$4, with lump and block stable at $6@$7. Lake shipments, were unusually large.

Conditions in Northern West Virginia in 1922 Underwent Slight Change

Good Feeling Between Miners and Operators Evident During Strike—3,500,000 Tons Production Loss from Car Shortage —Failures Are Few — Future Shrouded in Uncertainty

H. A. WILLIAMSON
Fairmont, W. Va.

IN A general way conditions in 1922 have not been greatly different from those of 1921. In 1921 we shipped, roughly, 14,500,000 tons; in 1922 we will ship probably 12,500,000 tons. Naturally the feature most affecting tonnage was the strike.

During the strike of 1922 the outstanding feature in northern West Virginia was the evident good feeling existing between the operators and the miners. It is almost universally conceded that there would have been either no strike at all or one of short duration had those concerned been allowed to negotiate without the interference of outside parties. There were a few disturbances but they were small in comparison to the area involved and what happened in other regions.

In the long run what affects the tonnage most is the car supply or lack of it. There can be no satisfactory solution of this situation until the basic feature is corrected. That feature is simply that the railroads do not have sufficient cars. Various figures have been given as to what loss lack of cars caused in 1922, but it is conservative to say that it was at least 3,500,000 tons.

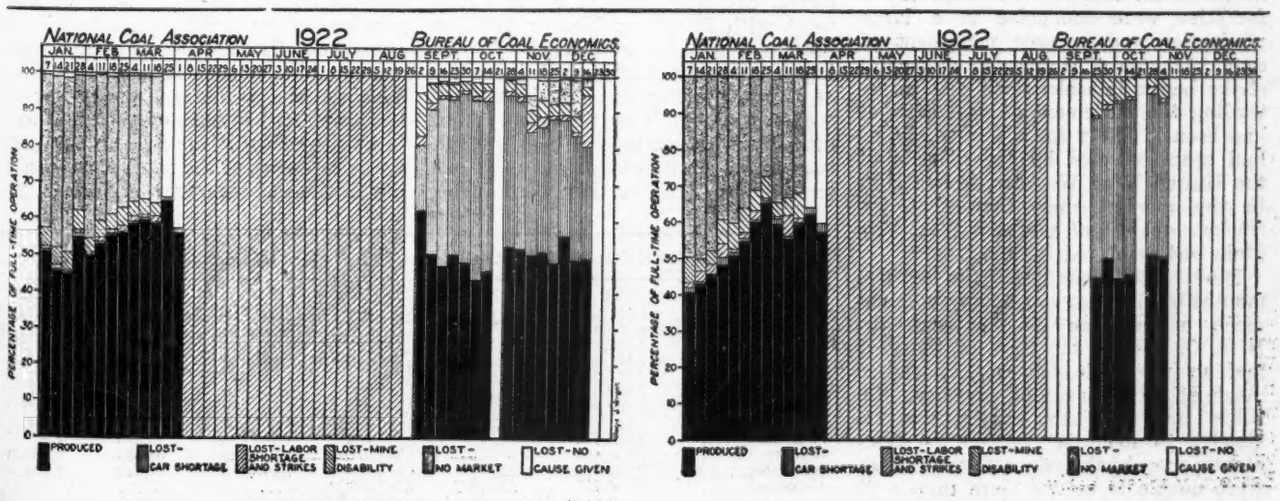
Up to a few years ago the B. & O. was the only road serving the region. Then the Monongahela, having connections with the Pennsylvania and New York Central systems, opened, and also the Western Maryland obtained certain short branches and connections and commenced to send its cars into the region. In 1920 the Monongahela handled something over 5,000,000 tons, in 1921 about 3,600,000 and in 1922 (ten months) slightly over 3,000,000 tons. It is to be noted from this that tonnage on the Monongahela dropped in spite of the fact that all the mines on its lines are practically new and just developing and their tonnage should be increasing largely each year. Of course some of this has been due to lack of business and a large part in 1922 due to strike, but it is also largely due to lack of railroad cars. Further, the car supply has been generally better on the Monongahela than on the B. & O.

Another feature severely affecting tonnage to the West and Lakes is the freight differential which went into operation some years ago. During the period of severe shortage of coal—when "coal was coal and price made little difference"—the affect of this differential was not noticed. Including the Lake coal, in 1914 5,500,000 tons of coal went westward; in 1916 3,000,000 tons. In 1921 our Western shipments, including Lake coal, were 1,330,000 tons and for the ten months of 1922 919,000 —a differential of 40c. per ton went into effect in 1920. The figures are more impressive than any comment we can make. Had the region been able to compete in the Western markets it would have shipped more coal in that direction and their present shortage would not now be as acute as it is.

In spite of the disadvantages of the year there have been but few failures of mining firms. This storm of adversity all in a bunch has been weathered very well. There have been some new companies organized and some development work has been done, but not a great deal.

Prices have varied widely during the year. Accurate average prices, in spite of the many such reported, are difficult if not impossible. In a general way probably $1.60 per ton, f.o.b. mines, represents the low price of the first one or two months of the year. Later in the year spot prices at $6.50 and higher have been rumored. Authentically reported maximum prices are in the neighborhood of $4. The average price for the first ten months of the year appears to be approximately $3.50.

What will happen in the coal business in 1923 is a question probably more in doubt than ever before in the history of the industry. From the fact that there



PERCENTAGE OF FULL-TIME OPERATION OF COAL MINES AND TIME LOST BY CAUSES

apparently is a coal shortage and other business is picking up, the demand for coal should be strong. On the other hand there is no probability of betterment of the railroad situation and there is the possibility of a strike. Northern West Virginia operators seem to be preparing for a good year but they also seem to have no particular reason for it other than a general spirit of optimism.

West Virginia Smokeless Output Hits High

Last Year One of the Best Since 1916—Estimated That 33,000,000 Tons Was Produced, Which Could Have Been Surpassed with Adequate Transportation

By J. W. Weir
Elkins, W. Va.

THE year 1922 ranks as one of the largest in smokeless production in West Virginia since 1916. It is conservatively estimated that when all statistics are compiled it will be found that not less than 33,000,000 tons was produced. The smokeless mines could have exceeded the record of 1916 if transportation facilities had been adequate. Only at the outset of 1922 and then for but a short time was production retarded by lack of demand.

During the first part of the year there was a recovery from the market slump witnessed at the end of 1921. This was followed by another period during which production reached a larger scale at times than had ever before been recorded in the history of the regions, continuing until July, when the effects of the shopmen's strike began to be felt. From then until the end of the year most mines labored under great difficulties owing to transportation disabilities.

An analysis of conditions prevailing in the smokeless area throughout the yearly period shows that the most serious factor in curtailing production was not the coal strike, not the level of prices or the state of demand but a general breakdown in transportation facilities following the termination of the railroad strike. Of course during the early part of the year, when there was a comparatively light demand for smokeless, car service was ample for all requirements. And even during the height of the coal strike transportation facilities were conducive to a large production and a large movement of coal. Though of course the shopmen's strike began to make itself felt in retarding the movement of coal after it had been in effect for a few weeks, as had been expected by the officials of the United Mine Workers, it has been in the months since then that the smokeless mines of southern West Virginia have suffered the most.

Much of the time during the last five months of the year car supply was not much better than 30 per cent, the N. & O. toward the close of the year making it possible, however, to load as much as 40 per cent of capacity. On other lines the car supply was restricted to about 30 per cent of allotments; some of the mines on the C. & O. were unable to secure more than a 20 per cent supply. It was not only a paucity of cars which tended to so materially curtail production but deficient motive power.

TABLE OF PRODUCTION ON THE N. & W. BY DISTRICTS, FOR THE YEAR 1922

Pocahontas	16,000,000
Tug River	4,500,000
Williamson	6,500,000
Clinch Valley	2,200,000
	29,200,000

The difficulty during the latter part of 1922 was in hauling coal to Western markets. Western outlets were constantly congested, necessitating frequent embargoes. Still another factor in retarding Western movement was failure of connecting roads to return cars which had been used to transport coal to the Lakes and Inland West markets.

There appeared to be less fluctuation in prices during the year than is usually witnessed. At the outset the demand was extremely dormant and that of course exerted a depressing effect on prices, mine run reaching as low a level as $2 a ton during the early months of the year. The prospects of a strike in organized fields on April 1 stiffened the demand for smokeless to some extent and resulted in heavier orders being placed for quick delivery yet there was not as sharp an advance as might have been expected in view of a prospective shortage of fuel in the markets. Prices were far from being as high, however, as had been the case during the 1919 strike, not only because of an agreement with Secretary Hoover but also because producers were averse to seeing a runaway market and in so far as it was possible checked the upward tendency as much as possible. As a matter of fact during the period of the coal strike smokeless prices were not on as high a level as they were during the final months of the year, when they took a decided brace as a result of heavier Eastern buying.

PRODUCTION ON THE VIRGINIAN, FIRST ELEVEN MONTHS IN 1922 AND 1921

	1922	1921
January	506,291	603,950
February	572,237	368,123
March	706,983	386,977
April	528,471	510,237
May	690,033	732,102
June	719,702	696,428
July	512,362	512,806
August	503,222	477,909
September	494,445	412,391
October	617,533	558,863
November (a)	581,593	483,855
	6,432,872	5,743,641

(a) Estimated.

Just about the time Lake shipments ceased, when it was thought there might be a surplus of low-volatile coal available, Tidewater markets revived and then there was during the last six months of the year a period of heavier buying in Inland East markets as smokeless supplanted anthracite to some extent.

The strike of bituminous-coal miners was felt in none of the smokeless fields of West Virginia except one—the New River region—though for a time it looked as if the United Mine Workers might succeed in organizing the Winding Gulf field. Injunctions, however, operated to put a stop to the effort.

OUTPUT OF COMMERCIAL AND FUEL COAL FROM MINES ON THE N. & W., FIRST TEN MONTHS OF 1922 AND 1921

	1922	1921
January	2,016,276	2,351,279
February	2,299,439	1,621,700
March	2,658,616	1,685,542
April	2,726,744	1,668,589
May	3,332,826	1,803,260
June	3,422,879	2,061,422
July	2,256,136	1,934,368
August	2,634,179	1,838,277
September	2,392,892	1,752,960
October	2,098,252	1,967,153
	25,838,239	18,684,550

Production was increased to such a marked extent during the strike at mines in the smokeless area that such mines had an important part in making it possible to produce fully as much coal, so long as transportation facilities were afforded, as had been possible previous to the strike with all mines in operation. The only effect of the walkout of union miners in southern West Virginia was to increase the non-union territory in that part of the state and to put the New River field in the non-union category, at the same time resulting in the abandonment of District 29.

COAL AND COKE LOADING BY MONTHS, 1921 AND 1922 BY MINES ON THE C. & O.

Month	1921 Coal	1921 Coke	1921 Total	1922 Coal	1922 Coke	1922 Total
January	1,934,600	50,390	1,984,990	2,209,910	29,720	2,239,630
February	1,288,910	40,140	1,329,050	2,463,230	29,160	2,492,390
March	1,524,350	25,550	1,549,900	2,663,830	40,410	2,704,240
April	1,867,400	26,210	1,893,610	1,915,820	28,560	1,944,380
May	2,379,040	30,060	2,409,100	2,641,800	36,300	2,678,100
June	2,664,020	24,370	2,688,390	2,994,960	41,920	3,036,880
July	2,002,460	14,000	2,016,460	1,807,840	42,970	1,850,810
August	1,846,500	13,730	1,860,230	1,782,590	33,690	1,816,280
September	2,005,380	21,580	2,026,960	1,569,880	30,470	1,600,350
October	2,533,450	29,520	2,562,970	1,819,560	43,730	1,863,290
November	2,010,940	23,880	2,034,820	1,938,150	46,980	1,985,130
December	1,566,850	20,460	1,587,310	.....	.....	.....
Totals	23,623,900	319,890	23,943,790	23,807,570	403,910	24,211,480

Tracing developments during the course of the year, January was ushered in with low prices prevailing, even the prepared grades selling at as low a figure as $2.65 and with mine-run priced at less than $2 a ton—a figure so low that many operators ceased production of such a grade for a time. Market conditions made for general idleness among the mines and for small production. By the middle of February fear of a strike had begun to stimulate buying so that it was possible to produce at 60 per cent of capacity. The demand was principally for prepared grades, however, with egg and lump bringing $3.50@$4.25.

Even in March, although there was a fairly well sustained market, there was no rush, the opinion apparently prevailing that the non-union fields would be able to supply all the fuel needed. Car shortage began to make itself felt slightly, but not on the N. & W. Production was smaller during the latter part of March, on the eve of a coal strike than during the earlier part of that month.

Even with a strike in effect smokeless buyers continued to bide their time. There was inquiry for a little more steam coal perhaps, but the market was still decidely apathetic and prices were unchanged. During the latter part of April inquiries began to become more plentiful, but even at the outset of May lump was not bringing much more than $3 and mine-run about $2.25.

May was a month of increasing production and falling prices, the N. & W. handling more coal than in any other month during the year except one, with production also on a large scale on the line of the C. & O. and the Virginian. Prices slumped to a marked degree, however, during the latter part of May, pending the outcome of the fair-price conference at Washington.

Production reached the maximum for the year in smokeless territory during June, with every mine working to increase its capacity under the urging of government agencies. It was not until the early part of July, however, that prices showed much signs of advancing, mine-run during the early part of that month ranging $3.25@$3.50, with lump commanding $3.50@$3.75. During the early part of July railroads suffered no ill effects from the rail strike but by the latter part of that period congestion had become somewhat general and production was materially curtailed. Inquiries began to grow in volume. Mine-run was commanding about $3.50 and lump was priced at $5@$6.

There were further declines in production in August. Priority orders began to divert smokeless from its normal channels and that tended not only to create confusion at the point of production but also to create a shortage in markets to which smokeless usually was consigned.

Prices underwent a decline during October owing to the large tonnage in Eastern markets, it being impossible to transport a particularly large volume to Western markets because the proper kind of equipment was not to be had. There was more activity in the buying of high-volatile in fact in October than in low volatile and in general smokeless mine-run did not range much above $3.50@$3.75, with prepared grades quoted $4.75@$5.

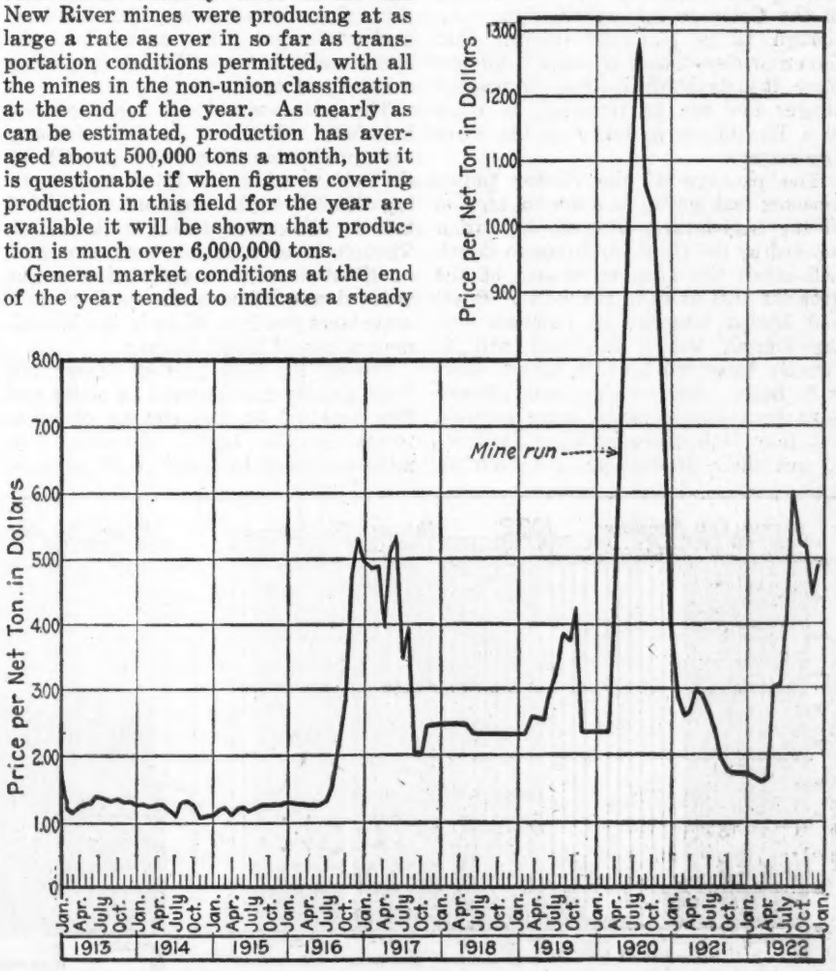
Until the latter part of November there was no change in market conditions. The demand was much better in the West than in the East and tidewater buying was almost at a standstill. The shortage of cars and poor transportation facilities continued throughout the greater part of December, though at times the N. & W. was able to increase the supply. On the C. & O., however, transportation conditions went from bad to worse and many mines had a supply of empties available only about once every ten days. The market veered early in the month, with buying of low-volatile principally in the East. The price on mine-run ascended the scale to $5 and finally to $6, with prepared grades $6@$8 and even more.

Commencing early in the year, operations were continued on a non-union basis in the New River field up until April 1, when the union succeeded in inducing many miners to cease work. The strike was short-lived, however, as many of the miners returned to work before it was a week old and it was possible to operate fully half the mines in the region. Steady gains in tonnage were made thereafter, and when the coal strike officially came to an end New River mines were producing at as large a rate as ever in so far as transportation conditions permitted, with all the mines in the non-union classification at the end of the year. As nearly as can be estimated, production has averaged about 500,000 tons a month, but it is questionable if when figures covering production in this field for the year are available it will be shown that production is much over 6,000,000 tons.

General market conditions at the end of the year tended to indicate a steady demand particularly in Eastern markets, through the shortage of anthracite, so that some producers at least thought that activity in the smokeless market might be expected during the first quarter of 1923.

Winding Gulf mines, of course, were handicapped during the early part of 1923 by a poor market, so that production was not on a large scale. For a time at the outset of the coal strike it seemed possible that a sudden and unexpected invasion of this region by the forces of the United Mine Workers might transform the region into a union district. The injunction issued by Judge McClintic, however, put a stop to organization work and throughout the period of the strike, mines continued to operate regularly, producing a large tonnage. Production will run well over 6,200,000 tons for the year. Those who have made a study of what may be expected during 1923, after taking into consideration the low price of coal during the first four months of the year and the weaker prices prevailing a part of the time during the last four months of the year, the increase in wages and loss of time, entertain the opinion that market conditions will not be above normal at least during the early part of the current year.

It is only necessary to point to a total of 25,000,000 tons of coal handled by the N. & W. during the first ten



SPOT PRICES F.O.B. MINES ON BOSTON MARKET OF MINE-RUN COAL FROM SMOKELESS FIELDS OF WEST VIRGINIA

months of the year to indicate in a measure the large production of the Pocahontas and Tug River fields. There were times in fact when Pocahontas production reached a total of 400,000 tons a week. Only a comparatively small proportion of the tonnage originating in Pocahontas territory found its way westward. owing to the lack of the right kind of equipment. Producers generally are not sanguine of any marked improvement in transportation conditions during the winter months and are therefore inclined to believe that smokeless will be scarce. If that is the case then there will be a steady demand at all times, at least until the beginning of April, when the labor situation, nationally, may become a further factor.

The figures herewith are not exact but are approximately correct and show that production in the Pocahontas field increased 25 per cent over that for the year 1921, bringing the total up to the figure for 1916, the banner year of the Pocahontas field. Southern West Virginia in the whole had a good year.

Colorado Busy and Fairly Peaceful in 1922

Practically Entire State Except Canon City Worked Non-Union, Supplying Widespread Market—Rangers, Now Disintegrating Because of Politics, Kept Order—Car Shortage Was a Handicap

BY FRED L. CUNNINGHAM
Denver, Colo.

ALTHOUGH Colorado's coal business was considerably hampered during the year with car shortage, strike troubles, mild weather and tunnel blockades, operators declare the year 1922 was one of the most progressive in the history of the state. The strike in the spring was adequately handled by Governor Oliver H. Shoup and his Colorado Rangers. During these critical times the cost of the guard duty was less by far than any previous strikes in the Colorado mining districts. Although it is generally known that Governor-elect Sweet opposes a Ranger force, it is doubtful whether the present ranger law can be repealed, as there is a Republican majority in the state Legislature.

The passage of the Moffat tunnel measure last spring at a special session of the Legislature, with all opposition blocked by the Colorado Supreme Court, will mean the opening of one of the greatest coal fields in the world. Routt and Moffat Counties in Colorado and the Uintah Valley in Utah will be directly benefited by this tunnel when it is built. Many rich mines already have been developed in these regions, but they lack transportation facilities to get their production to a market.

Freight rates that are inequitable have long troubled Colorado and New Mexico. Operators in 1922 appealed to the Interstate Commerce Commission for an adjustment. While a series of hearings were held on one of the cases throughout the West and the Southwest last spring, no decisions have been made. At the present time coal can be shipped from Wyoming into Kansas, Nebraska and other states at a lower figure than from mines in Colorado. Since the railroad strike, little has been said of freight rates, as most of the operators have had difficulty in getting a supply of cars.

The year started out more or less hopefully. The last half of January saw production stimulated greatly by the cold weather, the third week totaling 200,000 tons compared to 260,000 tons for the corresponding week in 1921. Though labor troubles were expected, no disturbances were reported when the reduced wages known as the C. F. & I. scale were put into effect in the bituminous mines of Routt County.

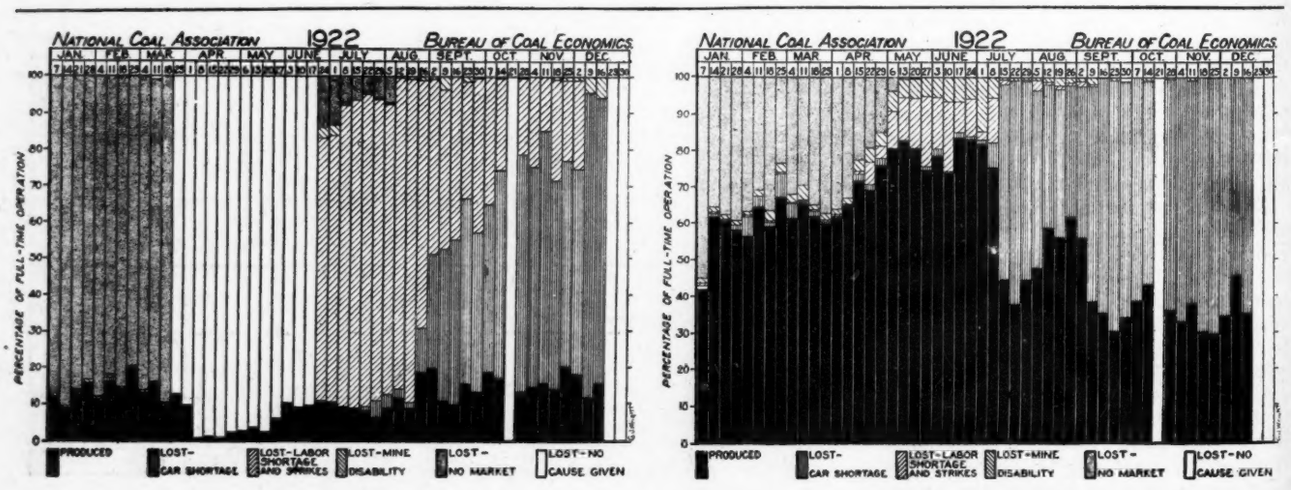
During the first part of March 500 Weld County miners went on strike and this resulted in the closing of eight mines in the lignite district. The miners refused to accept a 30 per cent wage cut similar to that in the bituminous fields. Bituminous lump was $5, slack $2.50 and steam $2 at the mines.

Late in March the worst accident of the year happened. Seventeen miners were killed in Sopris mine No. 2 of the Colorado Fuel & Iron Co., near Trinidad. Two hundred miners had left the mine just before the explosion. The only other great accident was the killing of six men in the Satanic mine of the Colorado collieries at Morrison in January.

With the strike called April 1, operators complained only of lack of business asserting that production was 90 per cent. Colorado was doing the unusual thing of shipping coal into Wyoming, which was almost completely handicapped by the strike. Bituminous lump was selling at $5@$6 at the mine, while lignite brought $4. Weld County lignite sold at $3.50, retailing for $6.20@$7.

During the summer the market grew so slack that many mines shut down for lack of market. Canon City district was the only one in the state closed by the strike. Efforts were made in various fields to cause trouble for miners willing to work. The Rangers quieted several incipient difficulties. The latter part of August Robert Turner, superintendent of the Turner mine, in Huerfano County, was arrested by State Rangers when miners reported that they had gone to the mine to work and that Turner informed them it would not be safe, it is alleged, unless they had a guard of at least 15 Rangers. He was released on bond. This peculiar case has since been dropped.

During September and since, the shortage of cars has been of serious concern to most of the coal operators. Price increases at the mines ranged from $1 to $1.50 per ton. In October the labor situation was somewhat improved with the readjustment of the wage scale. Retail prices were 75c. lower than in 1921. A price war in Weld County was waged between two small coal companies, reducing lignite coal in northern Colorado 90c.@$1.50 per ton. Some operators declared they were selling coal at $2.25@$3.



Kanawha District Pocahontas District

PERCENTAGE OF FULL-TIME OPERATION OF COAL MINES AND TIME LOST BY CAUSES

In spite of the car shortage, production in Colorado from Jan. to Sept. 30, 1922, was 6,916,131 tons, an increase of 307,105 tons over the same period in 1921. The big companies consider they have been successful generally speaking, in their battle against the unions and look forward to the twelve months of 1923 with some satisfaction though the weakening of the Rangers may permit more labor trouble in case of a nationwide union mine strike.

Oil Cuts Deeply Into Coal Trade of Southwest

Exceeds All Previous Annual Inroads, Taking Market for 692,000 Tons of Coal in Kansas City Alone—Helps to Cause Buyers' Strikes—Coal Dealer Tactics Aid Oil—Production Short

BY C. F. BUTCHER
Kansas City, Mo.

NO ONE thing, other than the strike, caused coal men of the Southwest more annoyance in 1922 than the increased use of oil. It is estimated that it is now displacing more than 692,800 tons of coal a year in Kansas City. Estimates based on a knowledge of the number of tanks in use there show that oil is now doing work formerly done by some 540,600 tons of industrial and some 152,200 tons of domestic coal.

On May 1, 1922, there were 9,220 oil burners in Kansas City domestic heating plants. Since then the total has been increased to 15,220. Calculated on a basis of ten tons of coal to a customer, these 15,220 tanks have supplanted grates which provided a market for 152,200 tons of coal a year. At the same time many oil burners have been placed in tributary territory. One firm in the last seven months sent 600 tanks into that territory.

The increase is attributed primarily to fear by consumers of a coal famine, aggravated by reports of car shortage and by geographical confusion on the part of newspaper readers, many of whom failed to distinguish between reported conditions in the hard-coal fields of the East and the soft-coal fields of the Southwest. Oil was partly responsible for the "buyers' strike" which was a major irritant to the coal trade late in 1922.

It must be admitted, also, that the tactics of some dealers in skyrocketing coal prices contributed to smooth the path of the oil-burner salesman. Where Kansas coal had been retailing at $8.50 @$9 a ton in January, February and March, inferior grades, stuff for which there had been absolutely no market before, was sold for as much as $18 in the summer. Coal from non-union mines in Alabama, West Virginia, Kentucky, Tennessee and Colorado was shipped in to augment such coal as was produced in non-union mines of Kansas, Oklahoma, Missouri and Arkansas, and all was sold indiscriminately at one price—the highest obtainable, regardless of its mine cost. As a result, the public was suspicious after the mines reopened when Kansas coal was quoted $1 higher than last March. Consumers placed orders for only one or two tons, and dealers, in their turn, shaved their orders to the skin.

For a time operators, handicapped by a curtailed car supply, welcomed the situation. But as the small orders were filled, "no-bill" cars began to accumulate. In September, October and until Nov. 22, Kansas coal was quoted at the mines at $6 for lump, $5.50 for nut and $2.50 for screenings. On Nov. 22, however, a return to the prices which prevailed in January, February and March was announced. Spot quotations became $5 for lump, $4.50 for nut and $2.50 for screenings.

After a couple of weeks of hesitation the demand slowly began to increase; the number of "no bills" dropped, and the business again began to suffer a little from weakened transportation. Cars again became scarce and power to haul them was scarcer. Coal men in Kansas City insist that if cars were moved at normal speed in transit, there would be little or no shortage in this district.

Southwest production in 1922 was considerably under that of 1921, which was no bonanza year. Tabulations of the Southwest Interstate Coal Operators' Association, the members of which produce between 85 and 90 per cent of the coal mined in Kansas, Missouri, Arkansas and Oklahoma, show that even after the five idle months September, 1922 fell 46,886 tons short of September, 1921. Association figures up to October show these results:

1921				
Jan.	Feb.	March	Sept.	Oct.
937,466	739,091	710,387	816,385	670,000
1922				
Jan.	Feb.	March	Sept.	Oct.
706,142	792,290	1,077,101	767,499	675,831*

*Estimated.

Volume of Business in Toronto Coal Market Much Lower Than for Many Years

Protracted Strike Has Far-Reaching Effect—Delay in Purchasing in Early Months, When Coal Was to Be Had, a Depressing Factor—Government Supervises Fuel Supply

BY PHILIP THOMPSON

THE coal trade during 1922 suffered severely from the effects of the protracted strike, owing to which the volume of business was considerably less than for many previous years. The extent of the falling off is indicated by the figures furnished by the Canadian Bureau of Statistics of the imports of coal from the United States into the Port of Toronto for the ten months of the year ended Oct. 31, as follows: Anthracite, 448,915 net tons; bituminous coal, 936,750 tons, as compared with 898,616 tons of anthracite and 1,096,052 tons of bituminous for the corresponding period of 1921.

The strike was not the only factor of the situation resulting in decreased trade, as during the earlier months of the year coal was easily procurable in larger quantities had orders been forthcoming. The general impression prevailed both among dealers and the public that prices were likely to be considerably reduced later in the season. Orders consequently were on a much more limited scale than usual. Later in the season domestic buyers who had postponed their purchases were able to obtain anthracite only in small quantities.

In August, when the effects of the strike began to be seriously felt, the situation received attention from the government and municipal authorities. The federal government appointed a central advisory fuel committee to have general supervision over the supply of fuel and the provincial government appointed a fuel controller for Ontario. The public was urged to use the greatest possible economy in the use of anthracite and to employ substitutes as far as possible.

Fuel Controller Ellis issued orders limiting the amount of anthracite to be delivered to a consumer to one ton and fixing the price at $15.50. This regulation has generally been obeyed by the larger dealers who obtain their supplies from the line companies, but others who procure coal from independent companies or through brokers are accused of asking considerably higher figures. The city procured some Welsh anthracite which was distributed in small lots in emergency cases. Representatives of British coal firms have been endeavoring to obtain a permanent foothold in the market, but so far have met with little encouragement.

The supply of bituminous coal has been equal to the demand, which has throughout the year been light owing to depression in the coal-using industries. Prices, however, have been variable lately and consumers all along have been indisposed to buy except for immediate needs. The general improvement in business conditions and some

increase of activity in manufacturing indicate increased consumption in the near future.

Expectations of a more plentiful supply of anthracite toward the close of the year were not realized owing to the acute shortage in the United States and it was found necessary to adopt a rule that orders must include 25 per cent of bituminous coal. It was expected that later in the winter the proportion of soft coal to go with each order would be increased. On Dec. 18 the City Council appointed D. Chisholm civic fuel controller, requesting the provincial government to give him full power to control prices and regulate distribution.

Central Pennsylvania Had Most Eventful Year

Rush to Fill Orders Before Suspension—Record Production When Mining Was Resumed, Followed by Widespread Depression Due to Car Shortage and Lack of Water

BY D. E. SELL

THE year 1922 will go down in history in the central Pennsylvania field as the most eventful since mining on a large scale was started. The year may be divided into four periods. The first was the rush to supply orders prior to the strike. Then came the long period of anxiety and low output during the strike, followed by a record production at its end, in turn followed by a depression in practically all quarters due to a car shortage and in some places a lack of water to operate the mines.

With the resumption of much industry throughout the country and the heavy demands for transportation fuel and with talk of a strike over wage and union disputes, the year started off with heavy production, which gained momentum, reaching the peak in March, during which time considerable coal was stored.

With the declaration of a general strike, only the non-union portions of the district continued to produce, and even these mines were somewhat affected owing in some places to the non-union miners, being afraid of violence, refusing to enter the mines.

Windber, in Somerset County, and Vintondale, in Cambria County, were the principal non-union centers, and the mines in both sections, as well as in the vicinity of the main line of the Pennsylvania near South Fork, operated to 60 to 70 per cent of capacity during the strike period.

Very little attempt was made during the strike period to operate outside the non-union districts but operators took advantage of the time to get ready for the rush for coal that was bound to come, owing to the exhausted supplies.

So eager were the men to return to work and the operators to resume business that no time was lost in getting the mines under way after the strike. Production increased by leaps and bounds so that the coal-carrying roads entering the field, namely the Pennsylvania, Baltimore & Ohio, New York Central and the Buffalo, Rochester & Pittsburgh, were crowded beyond their capacity.

During the high production period, operators were hampered by a car shortage, due largely to a strike of shopmen, which reduced the number of cars available for loading and the number of engines available for hauling. This did not affect the business in this district to the same extent as some other fields due to the fact that the Pennsy shops in Altoona were kept working with a full force.

At the height of production the demand for anthracite removed many cars from the district and the government undertook the assignment of cars. This worked out all right for the mines furnishing railroad fuel, but operators furnishing commercial coal found themselves short.

The worst drought in the history of the district extended into the winter. Some of the larger mines found themselves without water and were compelled to close down indefinitely and the end of the year found most of the mines in the district, except such as own their own cars and those supplying the railroads, without cars and unable to accept orders owing to inability to guarantee shipments.

An advance step was made in organization when the Ceneral Coal Association, the Central Pennsylvania Coal Producers' Association and the Association of Bituminous Coal Operators of Central Pennsylvania united at a joint conference held in Altoona on Nov. 9. The general office is located in Altoona.

The mines were in operation 130 days during the year. There are in the field 1,015 mines, including many smaller operations. In these mines a total of 65,000 miners are employed, of which approximately 1,000 were still on strike at the close of the year.

Production in 1922 was 34,700,000 tons, 8.54 per cent of the entire country's production. This is the lowest output since 1904, when 32,748,000 net tons were mined. In 1920 the central Pennsylvania field produced 10.32 per cent of the entire country's coal and in 1919 the production reached 14.94 per cent of the entire production.

The close of the year was met with a very serious obstacle in the form of a car shortage, which grew more acute as time advanced. With the car shortage came cancellation of orders and the operators unable to accept orders due to the fact that they could not guarantee shipment.

Utah Operators Had Lively Year in 1922

Coal Camps Under Martial Law During Strike — Grand Jury Investigation Resulted in Indictments of Several Corporations — Production Exceeded That of Previous Year

BY FRED L. W. BENNETT

UTAH coal operators had a rather lively time last year. First came the strike and the placing of the coal camps under martial law for months. As soon as the soldiers were finally withdrawn a bitter newspaper attack was launched charging that the raising of the retail price of coal to $10 was robbery. The retail price on April 1 was $9.50 for lump and a cut in miners' wages caused a 50c. reduction which held good till the figure was raised to $10 at the end of the summer. A grand jury called to investigate the industry, returned an indictment against several corporations and individuals, the result of which is still to be decided by the courts.

The first six months of the year were characterized by poor market, the weather up to April 1 having been unseasonable. Then followed a period of great activity. Producers got behind on their orders. All this was the result of shortage in other states and the alarm which many local citizens were feeling at the prolonging of the strike.

The car situation was acute during the early part of the last quarter and resulted in considerable loss. Toward the close of the year business was rather quiet compared with capacity. Production for the first eleven months of the year was 4,373,470 tons, and another half million, at least, is expected to be added for December. In 1921 the figure was 4,090,397.

The outlook for business this year is improving as a result of increasing industrial activities.

Production of Bituminous Coal By Months, 1920-1922

(Net Tons)

	1922a	1921	1920
January	37,604,000	41,148,000	49,748,000
February	40,980,000	31,524,000	41,055,000
March	50,167,000	31,054,000	47,850,000
April	15,777,000	28,154,000	38,764,000
May	20,287,000	34,057,000	39,841,000
June	22,328,000	34,635,000	46,095,000
July	17,003,000	31,047,000	45,988,000
August	27,358,000	35,291,000	49,974,000
September	39,510,000	35,870,000	50,241,000
October	45,141,000	44,687,000	53,278,000
November	45,303,000	36,805,000	52,576,000
December	46,254,000	31,650,000	53,257,000
Totals	407,712,000	415,922,000	568,667,000

(a) Subject to revision.

What Happened in the Coal Industry in 1922

January

Jan. 1—First break in union in Panhandle region occurs Dec. 30 when 200 men resume work in Colliers plant of West Virginia-Pittsburgh Coal Co. at 20 per cent reduction in wages (Vol. 21, No. 2, p. 61).

Jan. 1—Nova Scotia supreme court enjoins coal companies from making proposed 33⅓ per cent wage cut while board of conciliation tries its hand (Vol. 21, No. 2, p. 61).

Jan. 1—Permanent arbitration board rules that wages be reduced 20 per cent in Tennessee-Southeastern Kentucky field effective Dec. 1 (Vol. 21, No. 2, p. 60).

Jan. 2—Southern Ohio, Eastern Ohio and Pittsburgh operators decline Lewis' invitation to meet union heads in Pittsburgh Jan. 6 to renew four-state wage negotiations for April 1 agreement. Illinois and Indiana say they will meet but do not promise to negotiate (Vol. 21, No. 1, p. 21).

Jan. 3—Union locals in anthracite region draw up many resolutions for higher pay and stricter working conditions to be presented at Shamokin convention Jan. 17 (Vol. 21, No. 1, p. 21).

Jan. 4—Various union demonstrations against non-union mines and mines thought to be ready to open at low-pay ore made in Monongalia county. Fourteen men indicted (Vol. 21, No. 4, p. 175).

Jan. 4—President Lewis of U. M. W. of A. calls off Pittsburgh conference after Ohio and Pennsylvania decline to attend (Vol. 21, No. 2, p. 60).

Jan. 10—A few Georges Creek region mines are resuming operations at lowered wage scale. Manor Coal Co. cuts 30 per cent (Vol. 21, No. 2, p. 59).

Jan. 10—Matthew Addy interests and 120 other credit members of bankrupt Tidewater Coal Exchange sue debit members for settlement of accounts (Vol. 21, No. 2, p. 59).

Jan. 10—Keeney, Mooney and Blizzard charged with instigating Mingo county "invasion" remanded to jail without bond (Vol. 21, No. 2, p. 59).

Jan. 10—Maryland special commission submits to operators and miners for approval, a revision of state coal mining laws (Vol. 21, No. 2, p. 59).

Jan. 10—Coronado case ordered reheard Feb. 27 by Supreme Court so Chief Justice Taft can listen to argument. Bench divided 4 and 4 on it before Chief Justice White died (Vol. 21, No. 2, p. 60).

Jan. 12—Operators and miners in Georges Creek and Upper Potomac fields fail, in 3-day session, to reach agreement on next wage contract. About one-fifth of the territory is working at reduced wages (Vol. 21, No. 4, p. 176).

Jan. 13—Three entombed, many injured when 20 acres of Glen Alden Coal Co.'s National mine caves in (Vol. 21, No. 3, p. 147).

Jan. 13—Keeney, Mooney, Blizzard and 300 other union men indicted for West Virginia war. Two troopers shot trying to arrest a miner (Vol. 21, No. 3, p. 147).

Jan. 13—Government through Secretaries Hoover and Davis trying to find peace making scheme for coal industry. They collect wage data (Vol. 21, No. 3, p. 146).

Jan. 14—T. H. Watkins urges Westmoreland operators to join National Coal Assn. saying it can protect operators' interests as can no other agency (Vol. 21, No. 3, p. 147).

Jan. 14—Missouri Circuit Court judge removes temporary injunction preventing U. M. W. of A. from ousting Alex Howat in Kansas-Missouri union district (Vol. 21, No. 3, p. 147).

Jan. 15—About 100 New River mines resume operations on 1917 scale (Vol. 21, No. 4, p. 178).

Jan. 16—Railroad case against cut in coal rates weakened by doubtful testimony before I. C. C. J. D. A. Morrow says rate cut will increase traffic enough to reduce operating expenses (Vol. 21, No. 3, p. 145).

Jan. 17—Anthracite reaching New England is so poor that Mass. state fuel administrator advises refusals of it (Vol. 21, No. 4, p. 176).

Jan. 18—Keeney, Mooney and Blizzard released from Logan county jail on $15,000 and $20,000 bail (Vol. 21, No. 5, p. 219).

Jan. 21—Anthracite miners in Shamokin convention demand 20 per cent increase in pay and many changes in conditions or they strike April 1 (Vol. 21, No. 4, p. 179).

Jan. 23—Pennsylvania state auditor announces he will collect 1½ per cent tax on anthracite in spite of case to test tax law's constitutionality (Vol. 21, No. 4, p. 175).

Jan. 23—Nova Scotia Court of Appeals suspends injunction preventing coal companies from reducing wages (Vol. 21, No. 4, p. 175).

Jan. 23—Supreme Court again postpones rehearing of Coronado Coal Co. case against miners' union, this time to March 20 (Vol. 21, No. 4, p. 193).

Jan. 24—Anthracite operators' statement says union wage demands would add $1.30 per ton to anthracite price (Vol. 21, No. 5, p. 219).

Jan. 26—Pittsburgh Coal Operators Association and (Jan. 28) Southern Ohio coal operators post scales showing reductions of 30-47 per cent. Say they will not pay check-off. Union officials silent (Vol. 21, No. 5, p. 219).

Jan. 27—Senator Kenyon's report to Senate after investigation of West Virginia coal "war" calls coal a public utility and suggests to Congress a national "industrial code" and a federal arbitration board for mine labor disputes (Vol. 21, No. 5, pp. 215-216).

Jan. 28—Committee of three named to settle demurrage bills of old Tidewater Coal Exchange (Vol. 21, No. 5, p. 218).

Jan. 29—Attorney-General Daugherty says government will not define legitimate scope of trade association activities but associations "doing a legitimate business" will be encouraged. General uncertainty as to associations continues (Vol. 21, No. 5, p. 217).

February

Feb. 1—President Lewis of miners union invites 16 major unions of railroaders, to join miners in "economic alliance." Feb. 6 he refuses to affirm or deny report that only one accepts (Vol. 21, No. 6, p. 261).

Feb. 2—Country's coal stocks Jan. 1 were sufficient for but 32 days as compared to 43 days stock Nov. 1 Bureau of Census and Geological Survey announces (Vol. 21, No. 6, p. 259).

Feb. 2—Forty miners killed by explosions, 25 in Gates mine of H. C. Frick Co., Brownsville, Pa., six in Layman Calloway Coal Co. mine in Bell County, Ky., and nine convicts in Bell Ellen mine of Bessemer Coal, Iron & Land Co., Bibb county, Alabama (Vol. 21, No. 6, p. 258).

Feb. 2—Anthracite tax act of 1921 upheld by court of common pleas in Dauphin county (Vol. 21, No. 6, p. 258).

Feb. 4—Wage reduction of 30 per cent announced for Monongalia County, W. Va., by operators effective April 1 (Vol. 21, No. 7, p. 296).

Feb. 5—Attorney General formulates plan to help prevent April 1 strike but does not announce it (Vol. 21, No. 6, p. 257).

Feb. 6—Winding Gulf Assn. announces smokeless production in West Virginia for 1921 was only 29,800,000 tons as compared with 32,000,000 in 1920 and 36,000,000 in the peak year 1916 (Vol. 21, No. 6, p. 255).

Feb. 6—League of Industrial Democracy headed by Robert Morss Lovett and Chas. P. Steinmetz protests increase in hard coal prices (Vol. 21, No. 6, p. 257).

Feb. 6—Nova Scotia wage cut for coal miner to levels recommended in McKinnon award of 1920 is advised by Board of Conciliation. Day men would be cut 12½ per cent and all others 20 (Vol. 21, No. 6, p. 257).

Feb. 8—Secretary Hoovers 11 questions to Attorney General Daugherty on trade association scope of activity all get affirmative reply constituting new code for associations (Vol. 21, No. 7, pp. 297-8).

Feb. 8—Consolidation Coal Co. buys Carter Coal Co. including four smokeless field mines, thus entering smokeless operation at last (Vol. 21, No. 7, p. 300).

Feb. 10—Southern Appalachian Coal Operators Assn. votes to resist "closed shop" and check-off thus ending "open shop" agreement with union in that district (Vol. 21, No. 7, pp. 300).

Feb. 11—John Lewis announces all important rail unions accept invitation to meet miners in Chicago Feb. 21 (Vol. 21, No. 7, p. 301).

Feb. 13 — Market grows notably stronger. Stocking begins in earnest. Prices rise somewhat (Vol. 21, No. 7, p. 302).

Feb. 13—War Department reports it cost $150,000 to send troops into West Virginia coal fields in September and October (Vol. 21, No. 7, p. 313).

Feb. 13—Virtually all the western coal states are suing for freight reductions. Colorado wants 35 per cent off (Vol. 21, No. 7, p. 314).

Feb. 13—President Lewis of miners union in final statement before union convention at Indianapolis says: "Miners do not desire strike and will do everything possible to prevent it, as public will realize when convention has finished its work" (Vol. 21, No. 7, p. 301).

Feb. 14—Scale committee of miners union reports to convention favoring maintenance of existing wages, "8-hr. day underground." Farrington of Illinois says no five-day weeks, 6-hr. days, or radical demands will be made (Vol. 21, No. 7, p. 301).

Feb. 14—Senator Kenyon files bill based on his coal report. Would set up National Coal Mining Board of nine men representing operators, miners and public (Vol. 21, No. 8, p. 342).

Feb. 15—Dept. of Labor conciliators in report to President blame union for West Virginia field "war" and say there is little suffering among miners and no evictions by companies (Vol. 21, No. 8, p. 342).

Feb. 15—Freeport Thick Vein operators announce 34 per cent wage reduction for April 1 (Vol. 21, No. 8, p. 343).

Feb. 15—Rep. Robison of Kentucky introduces resolution for general investigation of coal-mining industry (Vol. 21, No. 8, p. 343).

Feb. 15—Union calls off strike of 700 miners in Clinton field of Indiana who struck to compel re-employment of a discharged pumper (Vol. 21, No. 8, p. 354).

Feb. 15—Former Gov. Harding of Iowa, Gail Borden of New York, and other capitalists form Pocahontas & Sewanee Coal Co. and buy 13,000 acres near Pikeville, Tenn. (Vol. 21, No. 8, p. 355).

Feb. 15—Sewall's Point Coal Exchange and Lamberts Point Exchange both quit business (Vol. 21, No. 12, p. 507).

Feb. 16—Eight men killed recently in explosion wrecking Pond Creek mine of Marietta Coal Co. in Ohio (Vol. 21, No. 7, p. 312).

Feb. 18—Miners convention at Indianapolis adopts "suicidal" demands for six-hour day, five-day week and annual income sufficient to maintain miners decently. Farrington leads anti-Lewis faction and embarasses Lewis at times during meeting though Howat rehearing is denied (Vol. 21, No. 8, pp. 337-9).

Feb. 18—Howat, deposted Kansas union president sentenced to jail for failing to observe anti-strike injunction of Kansas Industrial Court, appeals to

U. S. Supreme Court (Vol. 21, No. 8, p. 341).

Feb. 18—Cambridge Collieries Co. buys mine and 8,000 acres from Morris Coal Co., near Senacaville, Ohio (Vol. 21, No. 9, p. 395).

Feb. 20—Market subsides again after small flurry. Prices recede slightly (Vol. 21, No. 8, p. 344).

Feb. 20—Coal mining accidents in 1921 reduced, Bureau of Mines report says. Fatalities decreased 13 per cent but rate per million tons is 3.99 as compared to 3.52 for 1920 (Vol. 20, No. 8, p. 353).

Feb. 20—Deep Vein Coal Co. mine caves at Princeton, Ind., and 400 men escape by air shaft (Vol. 21, No. 9, p. 394).

Feb. 20—Consolidation Coal Co. buys land for $500,000 on Clay and Knox county border, Kentucky (Vol. 21, No. 9, p. 394).

Feb. 20—Constitutionality of Pennsylvania anthracite tax act is questioned in Supreme Court on an appeal from Dauphin county (Vol. 21, No. 9, p. 382).

Feb. 20—Circuit Court of Appeals in New York requires debtor members of defunct Tidewater Coal Exchange to settle debts totaling $1,000,000 to the Exchange (Vol. 21, No. 10, p. 420).

Feb. 21—Illinois operators tell Lewis they are willing to meet him in four-state conference. Indiana says there's no use of a conference if whole Central Competitive field isn't in. Southern Ohio and Western Pennsylvania will not meet. Northern Ohio will attend if rest do (Vol. 21, No. 9, p. 381).

Feb. 24—J. E. McCoy resigns secretaryship of Southern Appalachian Coal Operators Assn. after 12 years service (Vol. 21, No. 10, p. 419).

Feb. 24—Railroad unions give miners only "moral support" in alliance conference at Chicago (Vol. 21, No. 9, p. 383).

Feb. 25—Anthracite operators after two-day conference agree to meet union officials in New York March 15. If they have a wage program they will not announce it (Vol. 21, No. 9, p. 383).

Feb. 27—Kanawha operators tell union if it persists in refusing to meet them before March 11 they will post a reduced wage scale without check-off (Vol. 21, No. 9, p. 382).

Feb. 27—National Grange officials urge farmers to oppose coming coal strike (Vol. 21, No. 10, p. 423).

Feb. 28—Preston County, W. Va., operators reduce wages (Vol. 21, No. 9, p. 380).

Feb. 28—Peabody interests and others in Illinois to withdraw before April 1 from National Coal Assn. (Vol. 21, No. 9, p. 382).

Feb. 28—Lehigh Coal and Navigation Co. announces its million dollar anthracite breaker at Coaldale, Pa., will be ready for use April 1 (Vol. 21, No. 9, p. 395).

March

March 1—U. S. Steel Corporation announces its mines produced 21,000,000 tons of coal during 1921 as compared to 30,000,000 tons in 1920 (Vol. 21, No. 13, p. 558).

March 1—After a survey, an engineer for Northumberland county, reports the county's anthracite mines are worth $91,000,000. They are taxed at $67,000,000 (Vol. 21, No. 10, p. 435).

March 1—Illinois operators propose to President Farrington that miners and operators of state hold wage conference. He puts it up to Lewis who says "No," (March 4). Farrington, the union rebel, keeps operators on the string by saying state union meeting will consider matter further (Vol. 21, No. 10, p. 421).

March 1—Nova Scotia operators and union officials reach agreement which goes to men on referendum (Vol. 21, No. 10, p. 422).

March 1—Western Canada's 9,000 union miners will strike if wages are cut April 1, official says (Vol. 21, No. 10, p. 422).

March 2—Miners numbering 1,400 at Old Forge Colliery, Old Forge, Pa., strike to force discharge of miner who was earning too much (Vol. 21, No. 15, p. 623).

March 6—Rail officials oppose coal freights before I. C. C., saying reduction would have little effect in prices in general (Vol. 21, No. 10, p. 419).

March 6—Secretaries Hoover and Davis each make informal efforts to produce peace in coal mining but without noticeable result (Vol. 21, No. 10, p. 423).

March 10—Western Pennsylvania and Southern Ohio tell Secretary Davis they will not change decision not to meet miners in four-state parley. Central Pennsylvania warns government it is "complicating matters" by its suggestion for a four-state conference (Vol. 21, No. 11, pp. 461-2).

March 10—Eight miners are killed and 10 missing in explosion at Sopris mine No. 2 of C. F. & I. Co. near Trinidad, Col. (Vol. 21, No. 13, p. 558).

March 12—Farrington gets into telegraphic tilt with Lewis over Illinois separate wage negotiation offer, but gives operators no definite answer as to time of meeting them (Vol. 21, No. 11, p. 461).

March 13—Supreme Court dismisses Alex Howat's plea against Kansas Industrial Court (Vol. 21, No. 11, p. 460).

March 13—State troops of West Va. dispatched to Thomas to guard miners of Davis Coal & Coke Co. at work on new low scale (Vol. 21, No. 12, p. 507).

March 13—Peabody Coal Co. claims biggest February production of any company in the country—829,000 tons. Buys Carterville & Big Muddy mine at Carterville, Ill. (Vol. 21, No. 11, p. 474).

March 15—Anthracite miners' wages 152 to 166 per cent higher than before the war and far higher by comparison than wages in any other industry, investigation for National Industrial Conference Board shows (Vol. 21, No. 12, p. 501).

March 15—Farrington agrees to meet Illinois operators separately before March 31 unless Lewis succeeds in getting an interstate conference in meantime (Vol. 21, No. 12, p. 506).

March 20—Consensus in Washington is that government is not going to intervene to prevent coal strike (Vol. 21, No. 12, p. 499).

March 20—Fairmont operators reported to be seeking settlement with union granting check-off in return for a scale. All regions in Central Competitive field maintain original positions. Southwestern Inerstate District has had two meetings with miners without accomplishment (Vol. 21, No. 12, p. 505).

March 20—I. C. C. begins hearings on inequalities in freight rates to ports on bunker coal and all other coal (Vol. 21, No. 12, p. 506).

March 20—Pittsburgh Coal Producers' Assn. delegates assemble at appointed time and place for union conference but no union men appear (Vol. 21, No. 13, p. 547).

March 20—Anthracite mining companies prepare to resist taxation under new act. Companies such as P. & R. Coal & Iron Co. are making agreements with Dauphin county officials on valuations much lower than proposed new ones (Vol. 21, No. 12, p. 519).

March 21—Indiana Bituminous Coal Operators Assn. frames up scale showing 30 to 40 per cent decreases over existing one. Secretary Penna now tells Lewis Indiana is willing to meet miners. Lewis refuses (Vol. 21, No. 13, p. 547).

March 21—President Lewis of miners' union declares strike beginning April 1 of all union mine workers of U. S. and Canada, Nova Scotia excepted. He doesn't even wait for finish of strike referendum to union men who are voting 19 to 1 for strike, Secretary Green says (Vol. 21, No. 13, p. 546).

March 23—Miners refuse to meet Southern Ohio operators (Vol. 21, No. 13, p. 547).

March 23—Rep. Bland (Ind.) introduces bill in House at Washington creating commission to "inquire into and report on the coal industry." Senator Borah (March 27) threatens to demand government investigation of causes for impending strike (Vol. 21, No. 13, p. 544).

March 25—Orient No. 1 mine of Chicago, Wilmington and Franklin Coal Co. sets world's record for 8 hours hoisting of soft coal with work of 8,210 tons, beating nearest competitor Zeigler No. 1 mine of Bell & Zoller by 947 tons (Vol. 21, No. 13, p. 547).

March 25—Miners officials in District 17, the Fairmont Kanawha region, meet operators but decline to make a contract saying they were "without authority to take such action until the Central Competitive Field scale has been made" (Vol. 21, No. 13, p. 547).

March 25—Country's coal stocks total 52,000,000 tons, greatest since Armistice Day, U. S. Geological Survey reports (Vol. 21, No. 13, pp. 542-3).

March 27—Farrington, union president in Illinois, finally sets March 29 as date for meeting with Illinois operators (Vol. 21, No. 13, p. 547).

March 27—Heavy production and quiescent market pull spot price of coal down materially, as country goes into strike period with heavy reserves (Vol. 21, No. 13, p. 548).

March 28—Pittsburgh and Central Pennsylvania operators post reduced scale offering 77 cents a ton for pick mining, 50 cents for loading and $4.50 $4.60 per day labor (Vol. 21, No. 14, p. 584).

March 29—Farrington meets Illinois operators, tells them he can do nothing toward making separate state deal unless "an emergency arises" but fails to define "emergency" (Vol. 21, No. 14, p. 583).

March 29—Kanawha operators adopt new scale showing 30 per cent cuts (Vol. 21, No. 14, p. 589).

March 30—Conference of operators and miners adjourns until April 3, having accomplished nothing (Vol. 21, No. 14, p. 584).

March 31—Orient No. 1 and Zeigler No. 1 mines of Chicago, Wilmington and Franklin Coal Co. and Bell & Zoller, respectively, ran world's greatest production race during March. Zeigler set world's record for month's hoist with tonnage of 164,109. On March 25 Orient mine broke daily hoist record with 8,218 tons (Vol. 21, No. 14, p. 586).

April

April 1—A. M Ogle tells House committee at hearing on Bland bill that operators refused to meet miners in four state negotiation because of disruption of the agreement by the union, court decisions declaring national agreements unlawful and economic conditions caused by non-union competition (Vol. 21, No. 14, p. 587).

April 1—General strike of union miners takes place. Non-union regions but little affected (Vol. 21, No. 14, p. 589).

April 2—For first time in history of West Virginia union local was held liable for damages for suspending a member, at Lumberport, W. Va. (Vol. 21, No. 14, p. 581).

April 2—President Lewis of miners' union, declares "some national authority over coal mining is necessary" (Vol. 21, No. 14, p. 585).

April 4—Chairman Nolan of House Committee on Labor invites operators of Central Competitive Field to meet miners in Washington, saying Lewis would meet any group large enough to negotiate. Every state maintains original position and no meeting is held (Vol. 21, No. 15, p. 625).

April 5—March shipments of anthracite total 6,778,667 tons which makes it third among list of Marches of past years, Anthracite Bureau of Information announces (Vol. 21, No. 16, p. 664).

April 6—Attorney General Daugherty writes Rep. Bland (Ind.) saying the government had no intention of disturbing a Central Competitive Field negotiation (Vol. 21, No. 15, p. 629).

April 7—John Grophy of miners' union tells House Committee on Labor that there should be a commission to investigate the whole coal industry (Vol. 21, No. 15, p. 627).

April 10—Up to now union has been successfully invading the Connellsville coke region (Vol. 21, No. 15, p. 628).

April 10—Supreme Court dismisses for lack of jurisdiction the Lambert's Run case of coal company against rail-

road for failure properly to allot cars (Vol. 21, No. 15, p. 629).

April 12—First coal cargo of season leaves Buffalo for Chicago (Vol. 21, No. 16, p. 683).

April 13—Gillen board of inquiry into Nova Scotian coal mining resions and is replaced by another board (Vol. 21, No. 16, p. 669).

April 13—Secretary Hoover declares in letter to Atty. Samuel Untermeyer that he is absolutely against open price trade associations but believes strongly in those whose functions are legitimate (Vol. 21, No. 16, p. 671).

April 15—Removal of 148 bodies from a Polish cemetery at Plymouth, Pa., to prevent their falling into caving mines is started (Vol. 21, No. 16, p. 683).

April 16—Rep. Johnson of Kentucky gets house at Washington to adopt amendment to Dept. of Justice appropriation bill forbidding prosecution of labor unions and farmers associations under the anti-trust act (Vol. 21, No. 16, p. 666).

April 17—Rep. Bland (Indiana) introduces new bill for commission of 10 representing operators, miners and public to investigate whole industry (Vol. 21, No. 17, p. 705).

April 17—Case to test constitutionality of Pennsylvania anthracite tax law goes to Supreme Court (Vol. 21, No. 16, p. 670).

April 17—Rep. Huddlesm (Alabama) introduces bill providing that federal court receiver shall operate any mine that suspends production and shall not return the property until operation is guaranteed by owner (Vol. 21, No. 16, p. 670).

April 17—Second week of strike finds public apathetic. West Virginia operators get injunctions from Judge McClintic restraining union from organizing there. No breaks in ranks of either operators or miners and no sign of federal intervention Lewis is said to be anxious for (Vol. 21, No. 16, p. 667).

April 19—There are 289,000 miners on strike in Pennsylvania including 95,000 in anthracite fields state bureau of labor reports (Vol. 21, No. 17, p. 704).

April 21—Dr. Harry A. Garfield tells Survey Associates, Inc., at New York banquet that he opposes public ownership of mines and proposes his 1919 idea for coal advisory commissions for both anthracite and bituminous. Philip Murray, vice president of U. M. W. of A. proposes joint fact finding commission and says strikers would go back to work at 1920 commission award (Vol. 21, No. 17, p. 705).

April 24—Twenty-three miners go on trial for treason at Charlestown, W. Va., for "levying war on State of West Virginia" claim indictments are invalid (Vol. 21, No. 17, p. 711).

April 24—Three hundred miners in Bridgeport, Tex., accept wage cut of $1.50 a day and 25 cents a ton and go back to work (Vol. 21, No. 18, p. 751).

April 25—Judge McClintic of U. S. District Court, perpetuates injunction against union proselyting in West Virginia Winding Gulf field, declares union and operators of Central Competitive Field conspired to curtail West Virginia production ever since 1898 (Vol. 21, No. 18, p. 751).

April 26—Anthracite conference resumes in New York, S. D. Warriner says (April 27) that 47,000 miners in hard coal in 1921 averaged earning $1,803.55 per year (Vol. 21, No. 18, p. 750).

April 28—Small riots around a mine or two and fusillade of shots in Carbon county draw out state troops in Utah (Vol. 21, No. 18, p. 751).

April 29—Union miners in West Virginia announce they will stand by the international organization no matter what course is taken by other states where the union is of doubtful strength (Vol. 21, No. 19, p. 793).

May

May 1—Counsel for 23 union miners on trial at Charles Town, W. Va., for treason fail to get indictments quashed but court upholds demand for bill of particulars citing overt acts of each prisoner (Vol. 21, No. 18, p. 753).

May 1—In fourth week of strike, production, demand and price all increased noticeably (Vol. 21, No. 17, p. 749).

May 1—U. S. Chamber of Commerce prophesies coal panic early in June for stocks will have gone below 20,000,000 ton mark by that time (Vol. 21, No. 18, p. 749).

May 2—Many coke workers in Connellsville district go back to work and others serve notice on union they will too, unless strike benefits are forthcoming at once (Vol. 21, No. 18, p. 751).

May 2—House Committee on Labor favorably reports Bland bill for a fact finding commission made up of directors of Bureau of Mines and Geological Survey, Commissioner of Labor Statistics and two representatives each of the public, the miners and the operators (Vol. 21, No. 19, p. 793).

May 3—Miners propose investigation by I. C. C. into anthracite freight rates. Operators say this is only an effort to detract attention from the main business which is the formulation of another wage scale (Vol. 21, No. 19, p. 791).

May 5—Sporadic outbursts of trouble in Utah climaxing in an attack on Carbon County mines where 500 or more shots were fired cause appeals for state troops. Fifty deputy sheriffs are already at Winterquarters and Scofield, President of Utah federation of labor, threatens a general strike if troops are sent out (Vol. 21, No. 19, p. 794).

May 6—Many small disturbances in Colorado up to date but no serious outbreaks. Several mines are working light even in the union stronghold around Canon City (Vol. 21, No. 19, p. 795).

May 9—Anthracite miners in continued conference with operators, refuse to agree to four-year basis for a contract and adjourn to May 16 (Vol. 21, No. 20, p. 853).

May 12—Rep. Petersen (N. Y.) introduces bill at Washington for commission of three to investigate costs between mine and consumer (Vol. 21, No. 20, p. 853).

May 12—Miners' union orders men out of every licensed mine in Ohio, thus closing private and co-operative operations (Vol. 21, No. 21, p. 895).

May 13—Federal Trade Commission files brief and argument in District of Columbia Court of Appeals sustaining its contention it has a legal right to require cost data of Claire Furnace Co. and others (Vol. 21, No. 20, p. 855).

May 14—Production in West Virginia grows heavier with increasing market demands. All fields except Kanawha report great union defections and even the latter field is working 35 mines (Vol. 21, No. 20, p. 854).

May 14—Railroads and some other big industrial buyers form a sort of buying pool with representatives in various fields to restrain ballooning of prices by lessening buying competition (Vol. 21, No. 20, p. 862).

May 15—Markets are topsy-turvy with demand strengthening and railroads buying more heavily. *Coal Age* Index now has ascended to 261, an increase of 31 points in a week (Vol. 21, No. 20, p. 856).

May 15—Development of coal lands in Chicaloon district of Alaska for Navy is planned by Department of Interior. Lake and Export Coal Corporation is to make field examination (Vol. 21, No. 20, p. 866).

May 18—Governor of Utah invokes old law and orders all aliens to surrender firearms before noon of May 22 to prevent further disorder (Vol. 21, No. 21, p. 896).

May 18—Anthracite operators refuse miners' 19 demands, saying that to grant them would impose annual burden of $170,000,000 on the industry. They propose decrease of 18 per cent in contract rates $1.20 a day for men and 72 cents a day for boys and five-year agreement (Vol. 21, No. 21, p. 890).

May 18—Fifty non-union operators at Hoover price control meeting, agree to use Garfield 1917 scale as basis for fair prices today. General conference of operators now producing is called for May 31 (Vol. 21, No. 21, pp. 890-1-2).

May 18-20—National Retail Coal Merchants' Assn. condemns profiteering and other evils of the industry in annual convention at Chicago (Vol. 21, No. 21, p. 897).

May 19—Presentation of the case for the defence in the treason trial of William Blizzard at Charles Town, W. Va., starts. Judge overrules motion to direct verdict of not guilty (Vol. 21, No. 21, p. 894).

May 20—Average margin of about 9 per cent is profit of bituminous industry during past four years—the best years in coal history, J. D. H. Morrow tells House Committee in Bland bill hearing (Vol. 21, No. 21, p. 883).

May 20—Rabbi Wise accepts invitation of Secty. Lewis of New River Coal Operators' Assn., to investigate suffering of miners in West Virginia. Mr. Lewis says the stories of deprivation are exaggerated (Vol. 21, No. 21, p. 896).

May 22—F. S. Peabody tells International Railway Fuel Assn. in convention that coal mines lose $400,000,000 a year through idle time and that ruthless competition is going to solve the coal industry's problem of over development (Vol. 21, No. 22, p. 937).

May 23—A 10 per cent wage increase effective June 1 has been announced by the Tennessee Coal, Iron & Railroad Co. to its miners in Alabama (Vol. 21, No. 22, p. 934).

May 24—A. M. Ogle elected president of National Coal Assn. at annual convention in Chicago indicates association will take a hand in labor problems hereafter, though it will not attempt to make wage agreements (Vol. 21, No. 22, p. 935).

May 25—Anthracite miners reject operators' proposal of 18 per cent wage reduction and reassert original demands thus lessening chances of succes at the miner-operator New York conference (Vol. 21, No. 22, p. 933).

May 27—President Farrington of the Illinois miners finally says "No" to the operators pressing him for a single-state wage conference. He admits frankly he cannot do it until the international union permits, which obviously means Lewis, has at last whipped him into line (Vol. 21, No. 22, p. 934).

May 27—William Blizzard is acquitted of treason arising out of miners' armed march on Logan county, W. Va., last fall. His is first trial of several hundred miners indicted on various charges (Vol. 21, No. 22, p. 936).

May 29—Coal market drops back and prices recede so that *Coal Age* Index now stands at 269. Hoover influence for lower prices and refusal of buyers to go on buying at the peak is knocking prices down (Vol. 21, No. 22, p. 938).

May 31—Secretary Hoover in price conference tells operators there can be no agreement among themselves under the law to keep prices down and that there is no law to furnish profiteers but asks operators to informally assure him Garfield prices, run of mine basis be maintained or maximum with committees in each district to see to it and report offenders. Operators all agree except in Western Kentucky (Vol. 21, No. 23, pp. 975-7).

June

June 1—Pennsylvania employment bureau says 5,000 more miners went back to work in Central Pennsylvania during May. Several Connellsville mines now on normal basis (Vol. 21, No. 24, pp. 1019-20).

June 1—American Wholesale Coal Assn. in annual convention chafes at Hoover price control. No definite decision made as to whether George H. Cushing will be retained as managing director. Seth Morton of Albany is elected president (Vol. 21, No. 23, p. 971).

June 2—Anthracite operators propose arbitration since all direct negotiations have failed to settle upon a new agreement (Vol. 21, No. 23, p. 978).

June 2—Retailers in various centers charge Hoover with hoisting prices by setting a maximum which has come to be a minimum as well and says smokeless that sold for $1.75 now sells for $3.50. This stirs up Senator Borah and others to talk of an investigation (Vol. 21, No. 24, p. 1015).

June 3—Signs of union weakening are seen in statements by William Petry of West Virginia and P. T. Fogan of Pennsylvania union vice-presidents, who say miner-operator conference "by June 15" is to be held and they prophesy

strike will end within 30 days (Vol. 21, No. 23, p. 978).

June 5—Supreme Court unanimously decides Coronado Coal Co. cannot collect strike damages from the miner's union thus reversing lower court, but establishes fact that unions can be sued in federal court for violation of law. In this case the union's responsibility for strike damages to property was not proven (Vol. 21, No. 23, p. 974).

June 5—Coal loaders are driven from slack pile at New Straitsville and attacking party of 200 or more men, shoot one man and injure others in first violence in Hocking Valley field. Judge enjoins union from interfering with work at strip pits (Vol. 22, No. 2, p. 68).

June 5—Coronado Coal Co. gets Supreme Court permission to petition for a reargument of the case against the U. M. W. of A. for strike damages to property (Vol. 21, No. 24, p. 1016).

June 5—Majority of Nova Scotian arbitration board proposes 20 per cent reduction in miners' wages to $3 a day. Minority report signed only by miner representative favors $3.45 (Vol. 21, No. 23, p. 979).

June 6—Homer D. Jones, president of National Retail Coal Merchants' Assn., writes Hoover the price protest of retailers. Hoover replies (June 9) that $1.75 pre-strike price retailers cite is not lump coal such as they sell mainly. Lump price was $3.25 so that increase really is 25 cents not $1.75. Hoover further urges these plans upon retailers a. All coal be sold at cost plus reasonable handling charge. b. Reserve cheap, pre-strike stocks for small household trade. c. Supply large trade from current purchases. d. Co-operate to restrain prices by not buying from mines that exceed Garfield scale. e. Handle coal straight to consumer without speculation (Vol. 21, No. 24, pp. 1015-6).

June 7—Anthracite scale committee decides to reject operators' arbitration plan (Vol. 21, No. 24, p. 1019).

June 9—Utah deputies withdrawn from strike fields duty and no troops are sent in. Foreigners have not generally obeyed governor's order to turn in their firearms (Vol. 21, No. 24, p. 1032).

June 9—Policemen employed by Vinton Colliery Co. at Vintondale, Pa., indicted for assault and battery in preventing public meeting run by A. G. Hays of New York, who tried to hold such a meeting as a test case. He sues Vinton Collieries Co. for $35,000 damages (Vol. 21, No. 24, p. 1021).

June 10—Secretary Hoover tired of politics played by retailers calls upon Roderick Stephens, chairman of the board of directors of the National Retail Coal Merchants' Assn., to "do away with disputes on trivial questions and enter into co-operation with me" (Vol. 21, No. 24, p. 1016).

June 10—District Court in New York decides against five debtor firms in Tidewater Coal Exchange case finding them owing creditor members as follows: Archibald McNeil & Sons Co., $198,000; Johnstown Coal & Coke Co., $17,000; New York & Philadelphia Coal & Coke Co., $11,500; West Virginia & Pennsylvania Coal Co., $72,000; Morrisdale Coal Co., $34,000 (Vol. 21, No. 24, p. 1020).

June 15—Retailers in most regions of the country agree in session at Washington to support Hoover price control plan (Vol. 21, No. 25, p. 1057).

June 16—Illinois & Wisconsin Retail Coal Dealers' Assn., in convention at Lake Delevan, Wis., call upon Hoover to "adjust incorrect and misleading reports" about prices the country over (Vol. 21, No. 25, p. 1059).

June 16—First Illinois coal production of the summer takes place at Herrin strip mine of Southern Illinois Coal Co. now loading coal under heavy guard but without disturbance (Vol. 21, No. 25, p. 1060).

June 16—Utah national guard goes on duty after train is shot up and mine manager wounded. Troops are rounding up armed strikers (Vol. 21, No. 25, p. 1061).

June 16—I. C. C. finally gives Henry Ford right to reduce coal freight rates on D. T. & I. Ry. (Vol. 21, No. 25, p. 1061).

June 17—Vinton Colliery Co at Vintondale, Pa., wins right of supersedeas nullifying injunction miners got to prevent company police from interfering with public meetings (Vol. 21, No. 25, p. 1057).

June 17—Various attacks have been made during the past week on little mines still operating in Indiana (Vol. 21, No. 25, p. 1060).

June 17—Illinois and Indiana operators flatly deny they will go into a four-state conference now (Vol. 21, No. 25, p. 1060).

June 20—Conciliation board in Western Canada recommends reduction of 30 per cent in miners' wages (Vol. 21, No. 26, p. 1100).

June 21—Judge McClintic issues injunction against 149 union men and officials stopping them from practicing intimidation on men working in mines of 70 coal companies in Kanawha field of West Virginia (Vol. 21, No. 26, p. 1101).

June 22—Herrin massacre takes place. Nineteen non-union miners and guards of strip mine killed and many more wounded after mob lays siege to Southern Illinois Coal Co.'s property. A. M. Ogle, president of National Coal Assn., blames John Lewis for inciting miners by wire (Vol. 21, No. 26, pp. 1097-9).

June 23—Two strikers are killed near Clarksburg, W. Va., in fight between union men and guards of non-union miners. However, 177 more mines reopen during latter part of June in Northern West Virginia (Vol. 21, No. 26, p. 1099).

June 24—Pennsylvania supreme court decides that anthracite tax is constitutional (Vol. 21, No. 26, p. 1100).

June 24—Julius Barnes, president of the U. S. Chamber of Commerce asks 1,400 member business organizations to help prevent runaway coal market by making fuel surveys and otherwise cooperating with Hoover (Vol. 21, No. 26, p. 1101).

June 26—President Lewis of miners' union, confers with President Harding and Secretary of Labor Davis. Lewis made the only statement merely saying the situation had been reviewed. Speculation is rife as to possible White House effort to end strike (Vol. 21, No. 26, p. 1101).

June 26—Market jumps up and down in uncertainty with prices generally shading upward. Western Kentucky coal begins to climb notably. Average coal price throughout the country is now $3.44 (Vol. 21, No. 26, p. 1102).

June 30—Pennsylvania Dept. of Labor and Industry in vain offers its services to arbitrate both anthracite and bituminous coal strikes there (Vol. 22, No. 1, p. 25).

July

July 1—Miners at Iverness Coal Co. at Iverness, N. S., threaten strike if wages are cut. Arbitration board is named (Vol. 22, No. 2, p. 68).

July 1—Kentucky-Tennessee Coal Operators Assn. elects J. E. McCoy secretary after his 12 years with Southern Appalachian Assn. (Vol. 22, No. 2, p. 66).

July 1—Wholesalers in an around Cincinnati protest to Hoover because operators in Kentucky take full Hoover price leaving them no margin (Vol. 22, No. 1, p. 24).

July 1—Railway shop men all over the country strike but without any immediate effect on coal shipment.

July 1—President Harding calls operators and miners into conference at the White House. They accomplish nothing on Saturday. Resume Sunday and then adjourn to July 10. Secretaries Hoover and Davis take part (Vol. 22, No. 1, p. 27).

July 1—Anthracite operators and miners meet Secretary Fall who said coal industry should be regulated as a public utility and that government is prepared to fix price of coal to return fair income in investment (Vol. 22, No. 1, p. 27).

July 1—W. B. Reed resigns as secretary of National Coal Assn. to set up in business as expert on mine taxation and accounting (Vol. 22, No. 1, p. 29).

July 1—Union commissaries and bread lines are opened in Terra Haute, Clinton and other Indiana coal mining centers (Vol. 22, No. 1, p. 26).

July 2—Rep. Denison of Illinois explains Herrin massacre as result of miners' reason giving way to passion when mining company violated agreement and imported strike-breakers (Vol. 22, No. 1, p. 24).

July 2—Adjt.-Gen. Hamrock of Colorado, charges Lieut.-Gov. Cooley with addressing mass meeting of striking miners when Gov. Shoup had ordered that no such meetings be held. Gov. Shoup hurries back from vacation (Vol. 22, No. 2, p. 68).

July 2—J. B. McLachlan, secretary-treasurer of the Maritime district of U. M. W. of A., in Nova Scotia, publicly condemns President Baxter for "selling out" the union in the agreement Baxter signed for Nova Scotia. Baxter calls McLachlan a bolshevik (Vol. 22, No. 2, p. 25).

July 2—Smokeless mines of West Virginia now producing at the rate of 3,000,000 tons a month. The Pocahontas field is mining 70,000 tons a day, Winding Gulf, 20,000; New River and Tug River, 20,000 each (Vol. 22, No. 1, p. 26).

July 3—Operators at White House conference propose: (1) Negotiations by districts, (2) Six miners and six operators redistrict the country, (3) Arbitration by districts, (4) President appoint arbitration board of three disinterested men for each district, (5) President name a general investigation board, (6) New wage scales be made by July 15 or referred to district arbitration boards who must report by Aug. 1, (7) U. S. Attorney General pass on legality of this method of settlement (Vol. 22, No. 2, p. 65).

July 5—Howat men in Kansas offer to go back to work seeing opportunity thus to gain reinstatement as union men (Vol. 22, No. 2, p. 68).

July 6—Operators but no miners attend Pennsylvania State Commissioner of Labor Connelley's peace meeting. Operators are for separate district wage agreements (Vol. 22, No. 3, p. 105).

July 6—International Ladies Garment Workers Union votes $100,000 to aid miners (Vol. 22, No. 2, p. 68).

July 7—President Farrington of Illinois miners gets authority from his executive board to call special convention for that state. Illinois operators disclaim any knowledge of what he is going to do (Vol. 22, No. 2, p. 67).

July 9—Union orders interference with pump men in Illinois mines stopped. Companies have been using clerks and other "company men" on such work (Vol. 22, No. 2, p. 67).

July 10—President Harding, seeing the miner-operator conference at the White House is deadlocked, proposes resumption of work at old scale until Aug. 10, while commission of three miners, three operators and five to be named by President works out new scale and makes exhaustive investigation of entire coal industry. President Lewis asked until July 17 to answer after miners whole scale committee assembled in Washington (Vol. 22, No. 2, p. 63).

July 12—Illinois appears to be preparing at last to do something about the Herrin massacre. Atty.-Gen. Brundage offers $1,000 for incriminating evidence and spends two days in Williamson county declaring afterward that he had valuable information (Vol. 22, No. 3, p. 106).

July 12—Shop crafts' strike begins to cripple coal transportation at strategic points on T. & N. and C. & O. (Vol. 22, No. 3, p. 106).

July 15—West Virginia fields produce more than they ever did in their history. Logan, Tug River, Kenova-Thacker and Pocahontas fields exceed normal by 20 per cent or more (Vol. 22, No. 3, p. 106).

July 17—President's conference fails. Miners refuse his proposal to go back to work at the old scale pending formation of new scale by commission. Majority of operators accept but Pittsburgh Operators' Assn., Central Coal Assn., and Indiana operators decline. Operators' majority decision made after most acrimonious series of meetings in coal history. President in disappointment, "invites" all parties to go home and resume operations, a thing which of course none do (Vol. 22, No. 3, 99-100).

(To be continued.)

Asks Legislative Policy to Extend Railroad Credit As Remedy for Coal Problem

The American Railroad Association has made a report to the U. S. Coal Commission in which is discussed some of the problems of the carriers in relation to the production and distribution of coal. The report was prepared by a special committee of which J. E. Roberts of Albany, N. Y., superintendent of transportation of the Delaware & Hudson Co., is chairman.

"We have endeavored to inform the commission as to the causes of the trouble, so far as the railroads are factors in the situation," the report says. "We have set out some facts as to the extent of car shortages in times of peak demand, and have stated our views as to certain suggested remedial measures. We feel that the real remedy is to be found in the adoption by the American people, speaking through legislative bodies and regulating commissions, of policies which will bring about:

"(1) Such an attitude toward the railroads as will convince the public that money invested in railroads will receive a fair return, thereby strengthening railroad credit and making it possible to increase railroad facilities so as to care for the growing transportation needs of the country.

"(2) Peace in the coal industry and in the railroad industry, with such relations between employers and employees as will prevent strikes, the fruitful cause of interrupted production and restricted transportation.

"It has been intimated that an immediate contributing cause of difficulty is found in 'inadequate transportation facilities.' To what extent the conditions which create this impression are attributable to the abnormal overexpansion of the coal industry by the uneconomic multiplication of mine operations it is not our province to determine. It is enough to point out that there is an immediate demand on the part of an important section of the shipping public for additional rail transportation facilities; and, furthermore, the growth of the country and the increase of its commerce would, in themselves, constitute sufficient reasons for developing the carriers' facilities to meet the demands which are sure to be made upon them. But this can be done only by the investment of additional capital, and additional capital can be secured only by the reasonable assurance of a fair return, and this assurance will not exist unless the investing public has reason to expect from the government a liberal, and not a repressive attitude."

The report calls attention to the fact that in 1920 a total of 14,766 bituminous-coal mines were in operation, an increase of 154 per cent over the total number in operation in 1910, while coal production increased only 37 per cent. "This shows a continual decrease in the production per mine," the report says. "Had the 1910 tonnage production per mine been maintained in 1920, the tonnage of that year could have been produced by 7,950 mines instead of 14,766.

"This means that the railroads were called upon to divide the available cars among 6,800 more mines in 1920 than would have been necessary had the average production per mine been maintained on the 1910 basis. Expressed in another way, it meant that the 150,000,000 tons by which the coal production in 1920 exceeded 1910 was gathered from 6,800 additional mines, calling for vastly increased motive power, coal-car supply and man-power for the railroads to serve them all.

"While complete statistics for 1922 are not as yet available, such information as it has in hand justified the conclusion that this tendency toward inflation of the bituminous-coal industry continues.

"The expansion was not confined to the increase in number of mines. The number of cars ordered, based on the rated ability of the mines to produce coal, kept pace with the increase in number of mines, until for the year 1920 the mines ordered cars sufficient to load 830,000,000 tons, which was 46 per cent more than the total consumption of the country.

"In October and November, 1922, after the mines got fully under way following the miners' strike, the mines of the United States ordered cars for 165,000,000 tons, which was at the rate of approximately 1,000,000,000 tons per annum, or at the rate of twice the annual consumption of the country.

"The outstanding feature is the enormous increase in the number of mines contrasted with the relatively small increase in production, and is, we believe, a prime factor contributing to the plight in which the bituminous coal industry and the country finds itself at this time.

"It has been shown that the coal produced increased from 1910 to 1920 37 per cent while the number of mines increased 154 per cent, requiring a greater amount of transportation service. To meet this increased demand the railroads provided additional coal cars, with an increased aggregate tonnage capacity of 42½ per cent, in comparison with an increase of coal tonnage produced of 37 per cent. In addition, the aggregate tractive effort of the motive power provided by the railroads increased 53.1 per cent. Furthermore, the investment in road and equipment, for the purposes of coal and other traffic, increased 39.7 per cent.

"It is therefore pleasing to note the increase in transportation efficiency from the fact that a greater transportation capacity was provided with a minimum increase in individual units. It further indicates an economical policy in providing transportation facilities.

"The results of this policy are to be found in the freight transportation service rendered by the railways during this same period, for in 1920 they handled an increase in freight traffic of 62½ per cent, measured in net ton miles, compared with 1911. This increased freight service in 1920 was accomplished with an actual decrease in the number of freight train miles, while there was an increase over 1911 of 46 per cent in the average train load."

Strikes Have Been Disturbing Factor

The report points out that strikes among certain classes of railroad employees, miners, longshoremen, lake seamen and tugboat men "have all been potent factors in disrupting the orderly and regular flow of coal from producing centers to their normal markets."

"This has thrown undue and abnormal strains upon transportation facilities," the report added, "causing congestion of railway channels and gateways which decidedly slowed up movement of loaded and empty coal cars through such congested channels and gateways, causing great loss of car utilization and decreasing the number of cars available. It will thus be seen that general car-shortage periods are usually related closely to major industrial disturbances.

"It seems that the railways have fairly kept pace with the increase in coal production, but even with such additions and improvement they are unable to provide adequate service to accommodate a sporadic expansion and contraction of the coal industry such as has existed in recent years.

"Notwithstanding the fact that, as shown by the foregoing figures, railroad facilities have increased in greater ratio than coal tonnage, and in spite of the fact that there have been frequent periods when a substantial portion of the carriers' equipment has been stored for lack of traffic, it has also happened that the carriers have been unable to furnish transportation service for the traffic currently offered. In such situations the public insistently contends, as in fact the bituminous-coal operators are doing at the present time, that the facilities of the carriers are inadequate. It is, of course, certain that the commerce of the country will increase with resulting increase of traffic, and that periods will continue to recur when the railroads will be unable, as heretofore from time to time, to transport traffic as offered. If the public desires such service, it is obvious that the facilities of the carriers will have to be substantially increased in order to enable them to meet the public demand, which increase will be possible only in the event that railroad credit is strengthened and a more liberal treatment extended than has heretofore prevailed."

Operator-Road Cenferees Favor Mine-Rating Rules on Each Road to Fit Conditions

After several days' consultation the joint committee of operators and representatives of the railroads called to consider the formulation of recommendations to the Interstate Commerce Commission on the subject of mine-rating and car-distribution rules brought its labors to a conclusion on Jan. 12 and made the following report to Commissioner Aitchison:

"After consideration of the various mine-rating plans submitted by the different railroads and operators throughout the country, and in the light of the record now before the commission, the following was adopted by the joint committee of coal operators and railroad representatives today:

"After carefully studying the mine-rating plans submitted by different railroads and operators throughout the country, we think no set of specific rules can be formulated that would be equitable, just and uniformly applicable to all localities and all railroads, and it is proposed that each carrier or carriers in co-operation with the coal operators along the lines of said carrier or carriers adopt a set of mine-rating rules that will be workable on their railroads, which shall be predicated upon the following:

"(1) That the carriers individually or collectively shall establish and maintain mine-rating and inspection bureaus, or similar agencies, composed of officers or employees exclusively in the employ of the railroads.

"(2) It shall be the duty of this bureau, or agency, in order to prevent the undue inflation of mine rating, in determining the rating of the respective coal mines, to take into consideration the following basic principles: (a) Physical conditions; (b) past performance; (c) labor supply; (d) other factors that may affect the production and shipment of coal.

"(3) There are several codes of distribution rules now before the Interstate Commerce Commission for their consideration, none of which vary materially in fundamentals and which can be generally applied in connection with the proposed mine-rating principles outlined above.

"This is respectfully submitted by the joint committees of coal operators and representatives of coal originating railroads to the Interstate Commerce Commission for their tentative approval."

The coal operators added the following:

"Referring to the attached with reference to the joint conference of the committees representing the coal industry and the railroads, with respect to mine-rating and car-distribution rules:

"It was thoroughly understood, particularly after you addressed the meeting, that the principal objects of the conference should be to make an effort to find some way to prevent the inflation of mine rating in times of car shortage.

"Several codes of mine-rating rules were before the conference. These included all those submitted to the commission during the recent hearing and there was also called for any new suggestion that anyone had to offer, but no new code of rules was presented. There was advanced modifications of some of the rules that had heretofore been submitted for consideration. As the conference progressed and after those present had full opportunity to express their views on every angle of the situation it became clearly evident that none of the rules as written could be satisfactorily applied for the entire country. The operators on the Norfolk & Western made the very definite statement that they were entirely satisfied with the Norfolk & Western plan, that it had worked out satisfactorily to them and that they did not want it changed. The Indiana operators advised that they were entirely satisfied with the round-robin system in operation in that state. There, of course, by an arrangement between the mine workers themselves, all of whom are unionized, they do not go to work unless the car supply is at the mine, so there is not the opportunity for their loading up on a day on which no cars are furnished a lot of mine cars to make a better showing on a day that they do receive the cars. As near as could be ascertained this condition does not exist in any other territory to this same degree.

"Neither the Colorado operators nor the railroad representatives from the territory were present, but they all favor the idle-hour system in effect in Colorado and want to work in accord with that plan.

"Therefore, it finally developed that it was impossible at this time to make effective, by agreement, a uniform code of mine-rating rules that would be applicable to all the varying conditions in the varying territories.

"All in attendance at the meeting appeared to be strongly in favor of some method by which the inflation of mine rating could be prevented and an agreement was finally unanimously reached as to the adoption of the basic principles for establishing any system of mine rating. Particular attention is directed to that part of the attached referring to mine-rating and inspection bureaus. This would in reality be a sort of police system for not only rating the mines but checking the mines from time to time in an effort to prevent inflation.

"It was the unanimous opinion of the railroad representatives and the opinion apparently of the great majority of the coal operators present that in making any rating rules the present rules which gave development mines a preferential car supply should not be rewritten in the new rules but that this feature should be left to the mine-rating or service bureaus and each new operation should be rated strictly on its merits.

"For purposes of the record, the National Coal Association wish to state that a number of the representatives of the various territories in attendance at this meeting were not members of their association. We make this explanation so that it may be understood that this meeting was as nearly as possible representative of the entire country and not of any particular association."

Defence at Herrin Assails State Witnesses; Many Who Have Testified Threatened

The first case growing out of the Herrin massacre of June 22 is rapidly drawing to a close. The defence had practically all of its case in when court adjourned Saturday noon until Monday. The main effort all week had been to cast all sorts of reflections upon the veracity of the state's best witnesses who have testified that Otis Clark, one of the present five defendants, made an inflammatory speech to the mob which led 68 non-union captives from the Lester strip mine near Herrin, Ill., after the siege, and that Clark was one of two men who led crippled C. K. McDowell, mine superintendent, down a road and shot him and that the other four defendants played leading parts in the massacre. The defense witnesses also have testified that Clark was not at the place where McDowell was killed nor at the spot where the prisoners were shot to pieces running for their lives through a barbed-wire fence. These witnesses have been more or less in doubt about several points under cross questioning. All of them have said they knew not a man in the mob.

Dire threats have been laid at the doors of five or six of the principal state's witnesses in the form of letters accompanied by pieces of hangman's rope. They demand that the witnesses retract their testimony or be killed. The union organization, which is defending the whole case, declares this would-be campaign of frightfulness must be the work of "reds" outside the union who wish to throw all the discredit they can upon unionism. The business and professional practice of state's witnesses in the town of Herrin have suffered greatly since the trial started.

The defence has asked for the list of the indicted men whom the state proposes trying for the murder of John Shoemaker. That case will follow the present one. The state says it cannot be sure of the list until it learns the outcome of this first trial.

The State of Illinois is about to put $75,000 in the hands of Attorney General Brundage to prosecute the case further. A bill carrying such an appropriation has already been approved by the Senate Committee on Appropriations. Before the Attorney General began working on the case last summer, he had no funds and the Illinois Chamber of Commerce raised approximately $50,000 for him by solicitation through the chambers of commerce throughout the state.

Expect Contracts to Be Signed When U. S. Guarantees Immunity from Prosecution.

The West believes now that the present contract with mine-union labor will be signed for another year, as the United States Coal Commission requested. There is no doubt that negotiations toward that end will be begun at New York soon after the miner-operator conference starting Jan. 18. Illinois on Wednesday, Jan. 10, accepted the invitation to the meeting and Indiana's scale committee of operators is all ready to start. But there are obstacles to be overcome. The contract is not yet signed.

The main obstacle is the ever-present danger of federal prosecution of both miners and operators for making contracts on the four-state basis which the commission now favors. Both Indiana and Illinois go into the New York conference ready to sign if government sanction is given. The operators are by no means clear in their own minds about who is to give such sanction and guarantee it to hold water.

If President Harding could go to Congress and "get authority within twenty-four hours" to seize the coal mines of the country, as he threatened last summer, it is supposed he can now go to Congress and, within about the same length of time, get immunity from prosecution assured to operators and miners who do as the commission suggests. The New York conference will try to determine whether the President should be asked to do it or whether immunity should be obtained from some other official source.

While many other debatable points may arise in the conference, especially if the miners insist upon a contract for two years instead of one, the immunity question is expected to be the main one.

As operators gather in New York in advance of the meeting the opinion is more or less freely expressed that the commission has helped the operators out of a hole, although many are dissatisfied to have the government assume any position in the matter. Operators are saying that they would have had slim chance of winning a strike in 1923, after what happened in 1922, and to have the Coal Commission step in and assume the responsibility for holding wages up another year relieves them from the task of giving in or starting a hopeless fight.

In the East the union operators are expecting a very dull market this summer, with a repetition of strenuous non-union competition paralleling that of 1921. This they say means union mines closed down in every field. It is asserted that it is cheaper to close a mine down without a strike than with one, and if the union insists on its present wage scale, it may have it, without the work. There seems to be no one who now expects a strike this year.

The telegram from John Lewis and Philip Penna, dated Jan. 8, calling the meeting of the operators and miners of the old Central Competitive Field in New York on Jan. 18, follows:

"Acting, as we believe, in the interest of the coal industry and in accordance with sound public policy, the undersigned individuals request that a joint conference of the accredited representatives of the operators and miners of the Central Competitive Field, including western Pennsylvania, Ohio, Indiana and Illinois, meet at the Pennsylvania Hotel, New York City, at 11 o'clock a.m., Jan. 18, 1923, for the purpose of negotiating a wage contract effective April 1, 1923.

"We suggest that the representation be as in our previous interstate conferences—eight operators and eight miners from each of the four states. Kindly reply by wire to P. H. Penna, Opera House Block, Terre Haute, Ind., advising of the action taken upon this request."

Harry N. Taylor Succeeds G. F. Getz as President of U. S. Distributing Corp.

Harry N. Taylor, vice-president of the Central Coal & Coke Co., of Kansas City, Mo., has been made president of the United States Distributing Corporation and will soon establish offices in New York and Chicago. George F. Getz, head of the Globe Coal Co., one of the biggest Chicago coal jobbing houses, who has directed the corporation for three years as president and chairman of the board of directors, retains the chairmanship and will give much less of his time to the organization. Mr. Taylor, who resigns as vice-president of the Central Coal & Coke Co., also resigns the presidency of the Southwest Interstate Coal Operators Association and completely severs his active connection with coal operation in the Kansas and Oklahoma field, where he has been a dominant factor for years. Previously he operated in northern Illinois and Iowa.

Mr. Taylor has spent 40 years in the coal business, beginning with the Sunday Creek Coal Co., of Columbus, Ohio. He was at one time president of the National Coal Association. For years Mr. Taylor's voice has been heard with respect in the labor councils of the coal industry.

The United States Distributing Corporation was organized several years ago by the late Francis W. Peabody, of Chicago, and a group of associates including Mr. Getz; Fred W. Upham, president of the Consumers Co., the largest retail coal organization in Chicago, and coal and financial men in New York and elsewhere. The corporation is a financing organization designed to finance and link up various enterprises directly or indirectly concerned with coal. Beginning with a capital of several million dollars it now has heavy investments and controls several coal interests as well as the United States Trucking Corporation of New York City.

General Goethals Succeeds W. H. Woodin As New York Fuel Administrator

General George W. Goethals, builder of the Panama Canal, was named as State Fuel Administrator of New York by Governor Alfred E. Smith on Jan. 9 to succeed William H. Woodin. He was sworn in the following day and immediately assumed the duties of the office. General Goethals will receive a salary of $2,500 per month.

General Goethals announced that he contemplated making no changes in the personnel of the Fuel Administrator's office except in one or two instances where the officers have insisted upon being relieved. He said he expected to continue the policy followed by Mr. Woodin.

Colonel William J. Donovan, of Buffalo, who was counsel to the Fuel Administration, resigned and was succeeded by Colonel C. W. Wickersham.

General Goethals, accompanied by Mr. Woodin, went to Philadelphia on Jan. 12 to have a conference with E. W. Parker, of the Anthracite Distribution Committee.

I. C. C. Amends Service Order 32

The Interstate Commerce Commission has issued amendment No. 1 to its Service Order No. 32, authorizing the Pennsylvania R.R. to assign hopper-bottom cars to the No 5 mine of the Arrow Coal Mining Co. at Reitz, Pa., at the rate of five cars per day for five consecutive days. The cars are to be consigned to the Government Fuel Yards and are not to be counted against the distributive share of the mine.

IN NOTIFYING F. R. WADLEIGH of his appointment as Federal Fuel Distributor, the President wrote: "The resignation of C. E. Spens as Federal Fuel Distributor becomes effective Jan. 1, and I am writing to notify you of your appointment as Federal Fuel Distributor to succeed to the duties heretofore performed by Mr. Spens. Your appointment is in conformity with the act of Congress of Sept. 22, 1922. Your services as assistant to the Federal Fuel Distributor have already acquainted you with the policy of the government in keeping that service in touch with the Secretary of Commerce and the Interstate Commerce Commission. You will, of course, maintain this intimate relationship as heretofore."

DIRECTORS OF THE NATIONAL COAL ASSOCIATION and operators from many fields met in New York on Tuesday, Jan. 16 Routine business was transacted.

Coal Commission to Report Again March 15; Public Hearings to Be Held Soon

With its Jan. 15 report behind it, the President's Coal Commission now is concentrating its attention on the public hearings which it will hold in the near future. Matters pertaining to the scope, time and places of these hearings are now occupying the commission.

It was revealed on Jan. 13 that further tentative reports are to be forthcoming. The next report to the President and to Congress will be made on March 15. It is anticipated that it will be possible to include in that report some pertinent data as to wages and earnings. Another of the series of reports will go into the matter of profits, Chairman Hammond declared.

Returns now have been received from 40 per cent of the bituminous production, Mr. Hammond stated. There has been little or no protest on the part of the producers, he asserted, despite the fact that the compilation of the facts and figures for these questionnaires is an onerous task.

The commission regards the matter of restricting anthracite exports as coming under the jurisdiction of the Federal Fuel Distributor. This question has not been brought officially before the commission, however.

Fuel Administrators Warn Coal Buyers

As a warning to prospective purchasers of coal that they should assure themselves of the responsibility and standing of concerns offering coal for sale and shipment, F. R. Wadleigh, Federal Fuel Distributor, has made public the following correspondence with the chairman of the Pennsylvania Fuel Commission in regard to reports which have been received of the shipment of unmerchantable coal. Under date of Jan. 2, 1923, Mr. Wadleigh wrote W. D. B. Ainey as follows:

"Recently this office has received reports of the shipment of anthracite of unmerchantable quality, largely composed of slate, bone, clinkers and other foreign matter, apparently made by irresponsible and unscrupulous people. Assuming the accuracy of these reports, such acts constitute not only a violation of the law but indicate a particularly heartless attitude on the part of the persons guilty of such violation in taking advantage of the public during the national emergency in fuel supply. Innocent consumers who are furnished worthless coal on orders placed in good faith may be subject to great physical suffering in addition to pecuniary loss in the inevitable delay involved in procuring a supply of domestic coal of proper quality to replace deliveries of worthless fuel.

"In view of the gravity of the offenses reported, I am sure that you will agree with me that everything possible should be done not only to punish those guilty of such acts, but also to forestall the possibility of a repetition by warning prospective purchasers of coal to take the proper steps to assure themselves of the responsibility and reputation of any concern offering coal for sale before purchasing."

Mr. Ainey replied as follows on Jan. 10:

"Numerous complaints have come to this commission with respect to coal being offered for sale and delivery, the quality of which is such as to make it objectionable and unmerchantable.

"In every instance thus far brought to my attention, the coal was sold by companies who are not operating and whose names do no appear upon our list of coal companies of Pennsylvania. In order that the public may be protected from making purchases from unreliable dealers or jobbers, it occurs to me that a warning may with propriety be given by the Fuel Administrators of the several states against making purchases from people or alleged coal companies without some investigation or inquiries through the State Fuel Commission as to the standing of these people.

"We have now located in the field inspectors from our Bureau of Mines to check up the quality of coal put out as loaded in the car, and are doing everything that we reasonably can to protect our sister states and ourselves from exploiters. It is difficult to check those who are taking advantage of the public's necessities in the way indicated, and while our efforts will not be relaxed they can be made more efficacious if greater care will be exercised on the part of the purchasers.

"P.S.—Above letter sent to all State Fuel Administrators."

The Pennsylvania Fuel Commission has requested the Attorney General of Pennsylvania to investigate the activities of these shippers of unmerchantable coal and to look into the legal aspects of the whole matter.

Would Exempt from Taxes Coal in Storage

A resolution was introduced in the House of Representatives last week by Representative Appleby, Republican, of New Jersey, requesting the several states to take appropriate action through their legislators to exempt from taxation all fuel of any kind and character in storage within the limits of those states.

The resolution recites that "The fuel shortage in practically every section of the United States is becoming constantly more acute; conditions are such as to clearly indicate some practical steps must be taken toward the accumulation of reserves of fuel necessary to stabilize industry and protect the consumer in periods of acute shortages. It is evident that the seasonal demand for coal can, to a great extent, be met by storage at points near large centers of consumption. The practice of distributing agencies, railroad companies, corporations and individuals in storing large quantities of coal during the summer months in anticipation of future demand has practically been discontinued, largely because of the imposition of local taxes upon such storage stocks. The resumption of the practice of creating great storage piles of coal would establish valuable balance wheels to the trade and facilitate steadiness of operation of the mines, as well as assuring adequate sources of supply for seasonal demand."

Hazard Operators Hold Annual Convention

Although the all-day meeting was concluded with a big banquet in which everything was forgotten except fun, the 200 coal operators who attended the annual convention of the Hazard Coal Operators' Exchange at Lexington, Ky., on Friday, Jan. 12, spent most of their time discussing the extreme car shortage which has curtailed production in the Hazard field for many months.

Congestion of Louisville & Nashville cars at Covington and other Ohio River points has become so acute that the railroad is able to supply only 15 or 20 per cent of the demand and the mines are working only one or two days a week.

J. E. Johnson, of Lexington, was elected president and secretary of the organization, with J. T. Hatfield, of Cincinnati, vice-president and E. E. Bullock, treasurer.

The newly-chosen executive committee is as follows: Carol Robinson, Lexington; William J. Brown, Jr., Lexington; S. R. Jennings, Johnson City, Tenn.; J. H. Bowling, Lexington; Henry Pfenning, Lexington; James Bonneyman, Cincinnati; H. K. English, Lexington; Prentice Burlington, Cincinnati; W. E. Davis, Lexington; George W. Hay, Jenkins, Ky.; W. S. Dudley, Lexington; H. H. Heimer, Columbus, Ohio; A. L. Allais, Chicago, and G. P. Fitz, Hazard, Ky.

J. D. Haydon, superintendent of the eastern division of the Louisville & Nashville, was one of the principal speakers. On the program at the banquet were many prominent speakers and entertainers, including Governor Edwin P. Morrow, of Kentucky; Emery L. Frazier, Whitesburg, Ky.; Circuit Judge R. B. Roberts, Perry County; Prof. W. D. Funkhouser, of the University of Kentucky, and J. Edward Bassett, president of the Fayette National Bank, of Lexington.

That a large amount of development in the Kentucky river valley coal lands is being held up pending the return of railroad service to normal was the opinion generally expressed at the convention. Operators contemplating extension of their projects and outsiders contemplating entering the Hazard field are naturally reluctant to go deeply into coal propositions while the car shortage is so acute.

Production and the Market

Weekly Review

Markets are feeling the full effect of the holiday idleness and consequent heavy resumption of mining. Railroads made the most of the operating lull to clear away their line congestion of loads. These cars, together with the heavy tonnage produced during the first week of the year, moved to destinations in better time than for months. The larger receipts quickly eased the market tension of the last few weeks and lower prices resulted. *Coal Age* Index of spot bituminous prices receded 10 points last week and stood at 365 on Jan. 15, with a corresponding average price at the mines of $4.42 as compared with $4.54 the preceding Monday.

The strongest feature is the domestic market. Retailers are re-ordering promptly but report that the consumer demand is for smaller lots than formerly. The Western demand for Southern fuels is unabated, but movement in that direction is slow. A stronger Tidewater call has also diverted more tonnage to Hampton Roads, where coastwise prices on spot business recorded a stiff advance last week.

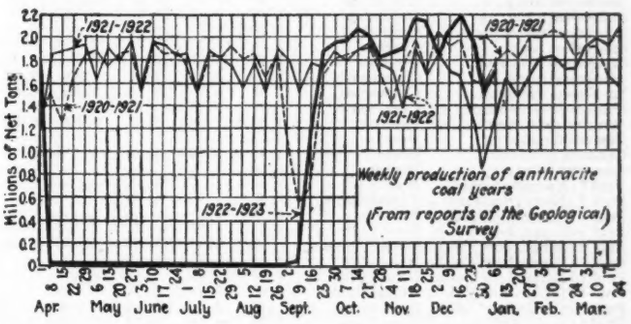
Demand Good But Not of High-Market Caliber

Demand continues fairly brisk but is not showing the tendency which makes for a high market. The better grades are still hard to obtain and are fairly firm in price. At the present rate of operations, railroads and contract users are taking so much of the total output that the volume of free tonnage is unusually small. Some anxiety is being shown over the labor situation. This is true among the large consumers in particular and with possible trouble less than 90 days off some of them admit they soon will have to change their buying policy to safeguard their operations.

American exporters are following with keen interest the developments of the French occupation of the Ruhr coal region in Germany. The possibility of a coal war between German producers and the French Government is absorbing their attention as it is realized that here may lie a temporary outlet for American coal. Should the price of German coal increase ever so slightly it will equal and even exceed the world price, which would release a flood of foreign coal into Hamburg.

Milder temperatures are the saving feature of the anthracite situation. With not enough coal to go around people manage to get along with the limited quantity available. The price list approved by the Pennsylvania Fuel Commission, which ranges up to $12, has caused some comment, especially as some quotations are heard at $13.25.

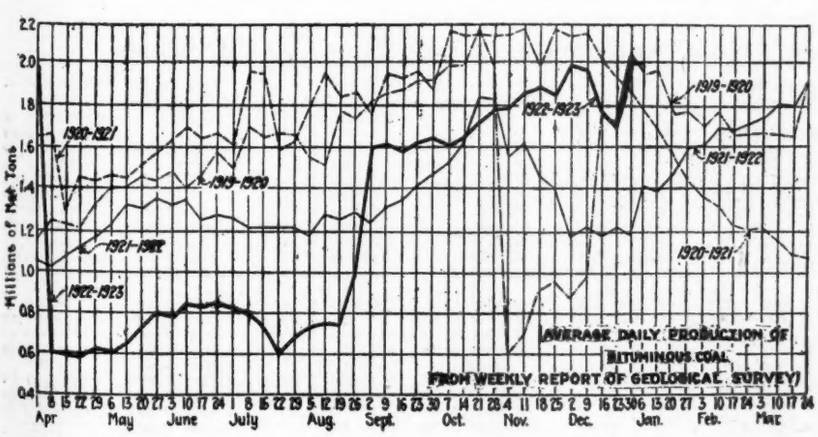
Shortage conditions are worse in New England and the Northwest than in other sections of the country. Only 69,000 tons of anthracite remains at the Head-of-



the-Lakes and this tonnage is all sold up. Blocking gales and snowstorms along the Atlantic Coast hinder the movement to New England and distributing companies are experiencing the worst delivery conditions in years.

The steam trade is now all that can be desired, as with so much buckwheat going into the retail trade, rice has come into strong demand, while barley has needed no urging at all for the past few weeks.

Blast furnaces are well supplied with Connellsville coke by contracts now running, most of them being for



Estimates of Production
(Net Tons)

	1921-1922	1922-1923
BITUMINOUS		
Dec. 23	7,450,000	10,031,000
Dec. 30 (*b*)	5,960,000	10,171,000
Jan. 6 (*a*)	7,460,000	10,895,000
Daily average	1,437,000	2,056,000
Calendar year	7,460,000	10,895,000
Daily av. cal. yr.	1,437,000	2,056,000
ANTHRACITE		
Dec. 23	1,320,000	2,028,000
Dec. 30 (*b*)	851,000	1,560,000
Jan. 6 (*a*)	1,242,000	1,725,000
Calendar year	1,242,000	1,725,000
COKE		
Dec. 30 (*b*)	103,000	263,000
Jan. 6 (*a*)	108,000	308,000
Calendar year	108,000	308,000

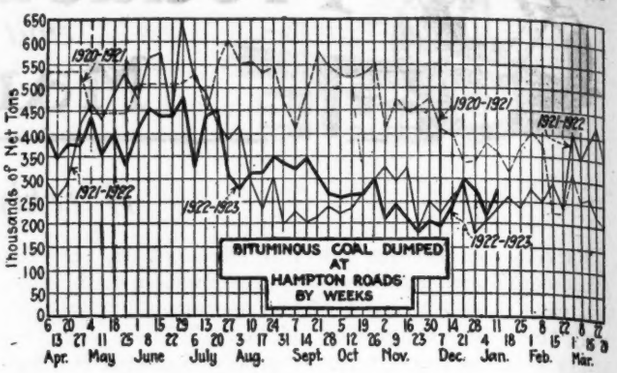
(*a*) Subject to revision. (*b*) Revised from last report.

the quarter. Only occasional purchases of spot or prompt coke would be made, and the furnaces are quite indisposed to pay the current market price. Foundries are buying sparingly, but are taking somewhat more tonnage than in December. As to coke for domestic use, the heavy buying movement from the East subsided recently, but there is still scattered buying. Coke below furnace grade has been well cleaned up.

BITUMINOUS

"Revised estimates of soft coal output in the week of Jan. 1-6, 1923, show a total of 10,895,000 net tons," says the Geological Survey. "Production on New Year's Day amounted to little more than one-fourth of the average for recent normal Mondays. On the following day the output rose to a high level which was sustained throughout the week by reason of the opportunity which the holiday afforded the railroads for bettering the service. According to preliminary reports of cars loaded during the second week in January that week opened with a large production, 45,238 cars loaded on Monday, but there was a sharp decline thereafter to 34,206 cars on Tuesday and to 31,491 cars on Thursday. The total output for the week is expected to be between 11,000,000 and 11,250,000 tons.

"Preliminary estimates place the output of soft coal, including lignite and coal coked at the mines, during December at 46,450,000 net tons. This was the largest monthly record



since March, 1922, and, in fact, it has been exceeded but once since December, 1920.

"The test of the sufficiency of production to meet requirements is the state of consumers' stocks. On Oct. 1, there was in commercial storage approximately 28,000,000 net

Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F.O.B. Mines

Low-Volatile, Eastern	Market Quoted	Jan. 16 1922	Jan. 2 1923	Jan. 8 1923	Jan. 15 1923†
Smokeless lump	Columbus	$3.45	$7.25	$7.25	$6.75@$7.75
Smokeless mine run	Columbus	2.15	6.60	6.60	6.50@ 6.75
Smokeless screenings	Columbus	1.50	5.75	5.85	5.50@ 6.25
Smokeless lump	Chicago	3.10	7.75	7.75	7.50@ 8.00
Smokeless mine run	Chicago	2.50	6.60	6.35	*6.25@ 6.50*
Smokeless lump	Cincinnati	3.00	7.00	7.50	**7.00@ 8.50**
Smokeless mine run	Cincinnati	1.90	6.25	6.25	**6.25@ 6.50**
Smokeless screenings	Cincinnati	1.30	6.25	6.25	*6.00@ 6.25*
*Smokeless mine run	Boston	4.80	8.60	8.35	**8.50@ 9.00**
Clearfield mine run	Boston	2.05	5.10	5.10	*4.50@ 5.25*
Cambria mine run	Boston	2.45	5.50	5.60	*5.25@ 5.75*
Somerset mine run	Boston	1.80	5.35	5.35	*4.75@ 5.50*
Pool 1 (Navy Standard)	New York	3.00	.....	6.35	*5.50@ 6.00*
Pool 1 (Navy Standard)	Philadelphia	3.00	5.80	6.00	.....
Pool 1 (Navy Standard)	Baltimore	2.30	6.75	6.60	*6.00@ 6.25*
Pool 9 (Super. Low Vol.)	New York	2.25	5.75	5.85	*5.00@ 5.50*
Pool 9 (Super. Low Vol.)	Philadelphia	2.30	5.55	5.75	5.50@ 6.00
Pool 9 (Super. Low Vol.)	Baltimore	2.15	5.75	6.10	*5.50@ 6.00*
Pool 10 (H.Gr.Low Vol.)	New York	1.95	5.75	5.35	*4.50@ 5.00*
Pool 10 (H.Gr.Low Vol.)	Philadelphia	2.00	5.10	5.25	5.15@ 5.40
Pool 10 (H.Gr.Low Vol.)	Baltimore	1.90	4.50	5.60	*5.00@ 5.40*
Pool 11 (Low Vol.)	New York	1.70	4.50	4.35	*4.00@ 4.50*
Pool 11 (Low Vol.)	Philadelphia	1.70	4.75	4.35	*4.25@ 4.50*
Pool 11 (Low Vol.)	Baltimore	1.80	4.35	5.00	*4.00@ 4.40*
High-Volatile, Eastern					
Pool 54-64 (Gas and St.)	New York	1.45	.....	4.00	*3.50@ 3.75*
Pool 54-64 (Gas and St.)	Philadelphia	1.55	4.10	4.30	*4.10@ 4.25*
Pool 54-64 (Gas and St.)	Baltimore	1.40	3.85	4.25	*3.75@ 4.00*
Pittsburgh sc'd gas	Pittsburgh	2.65	5.25	5.25	4.50@ 6.00
Pittsburgh mine run (St.)	Pittsburgh	2.15	3.25	3.60	*3.25@ 3.50*
Pittsburgh slack (Gas)	Pittsburgh	1.80	3.25	3.25	*3.15@ 3.25*
Kanawha lump	Columbus	2.95	5.75	6.25	6.00@ 6.50
Kanawha mine run	Columbus	1.80	3.35	3.75	3.50@ 4.00
Kanawha screenings	Columbus	1.50	3.10	3.35	3.25@ 3.50
W. Va. lump	Cincinnati	2.50	6.50	6.50	6.00@ 7.00
W. Va. Gas mine run	Cincinnati	1.40	*3.75	3.85	*3.50@ 4.00*
W. Va. Steam mine run	Cincinnati	.....	3.60	3.60	*3.25@ 3.50*
W. Va. screenings	Cincinnati	1.00	3.35	3.35	*3.00@ 3.50*
Hocking lump	Columbus	2.85	5.25	5.25	**5.00@ 5.75**
Hocking mine run	Columbus	1.85	3.10	3.10	3.00@ 3.25
Hocking screenings	Columbus	1.50	2.85	2.85	*2.65@ 2.90*
Pitts. No. 8 lump	Cleveland	3.50	5.10	5.10	*4.50@ 5.50*
Pitts. No. 8 mine run	Cleveland	2.10	3.45	3.50	*3.35@3.60*
Pitts. No. 8 screenings	Cleveland	1.95	3.30	3.30	*3.10@ 3.35*
Midwest					
Franklin, Ill. lump	Chicago	3.50	5.35	5.35	5.25@ 5.50
Franklin, Ill. mine run	Chicago	2.80	4.10	4.10	*3.75@ 4.00*
Franklin, Ill. screenings	Chicago	2.00	3.10	2.85	*2.50@ 2.90*
Central, Ill. lump	Chicago	3.10	4.35	4.35	4.25@ 4.50
Central, Ill. mine run	Chicago	2.50	3.10	3.50	3.25@ 3.75
Central, Ill. screenings	Chicago	1.80	2.30	2.25	*2.00@ 2.25*
Ind. 4th Vein lump	Chicago	3.35	5.10	5.10	5.00@ 5.25
Ind. 4th Vein mine run	Chicago	2.55	3.85	3.85	*3.50@ 3.75*
Ind. 4th Vein screenings	Chicago	2.10	2.60	2.50	2.40@ 2.60
Ind. 5th Vein lump	Chicago	2.95	4.75	4.75	*4.00@ 4.25*
Ind. 5th Vein mine run	Chicago	2.25	3.60	3.60	*3.00@ 3.25*
Ind. 5th Vein screenings	Chicago	1.65	2.35	2.10	**2.10@ 2.40**
Standard lump	St. Louis	2.75	3.85	4.10	4.00@ 4.25
Standard mine run	St. Louis	1.90	2.40	2.60	2.50@ 2.75
Standard screenings	St. Louis	1.35	1.50	1.85	1.75@ 2.00
West Ky. lump	Louisville	2.75	4.35	4.50	*4.00@ 4.75*
West Ky. mine run	Louisville	1.75	2.75	2.75	*2.35@ 2.75*
West Ky. screenings	Louisville	1.25	2.10	2.10	**2.10@ 2.50**
West Ky. lump	Chicago	.....	4.25	4.25	4.00@ 4.50
West Ky. mine run	Chicago	.....	2.75	2.75	*2.50@ 2.75*
South and Southwest					
Big Seam lump	Birmingham	2.75	3.95	3.95	3.45@ 4.45
Big Seam mine run	Birmingham	2.10	2.60	2.50	*2.25@ 2.50*
Big Seam (washed)	Birmingham	2.15	2.60	2.60	2.50@ 2.75
S. E. Ky. lump	Chicago	.....	6.25	6.25	6.00@ 6.50
S. E. Ky. mine run	Chicago	.....	3.85	3.85	3.75@ 4.00
S. E. Ky. lump	Louisville	2.85	6.60	6.60	*6.00@ 7.00*
S. E. Ky. mine run	Louisville	1.55	3.50	3.75	*3.00@ 4.00*
S. E. Ky. screenings	Louisville	1.25	3.20	3.35	*3.00@ 3.50*
S. E. Ky. lump	Cincinnati	2.55	6.50	6.50	6.00@ 7.00
S. E. Ky. mine run	Cincinnati	1.35	3.50	3.65	3.25@ 4.00
S. E. Ky. screenings	Cincinnati	1.10	3.25	3.35	*3.00@ 3.85*
Kansas lump	Kansas City	5.00	5.50	5.50	5.50
Kansas mine run	Kansas City	4.10	3.75	3.75	3.75
Kansas screenings	Kansas City	2.50	2.50	2.50	2.50

* Gross tons, f.o.b. vessel, Hampton Roads.
† Advances over previous week shown in **heavy type**, declines in *italics*.

Current Quotations—Spot Prices, Anthracite—Gross Tons, F.O.B. Mines

	Market Quoted	Freight Rates	Latest Independent	Latest Company	Jan. 8, 1923 Independent	Jan. 8, 1923 Company	Jan. 15, 1923† Independent	Jan. 15, 1923† Company
Broken	New York	$2.34	.....	$7.60@$7.75	$9.00	$7.75@$8.25	$9.00	$7.75@$8.25
Broken	Philadelphia	2.39	$7.00@$7.50	7.75@ 7.85	.....	7.90@ 8.10	.....	7.90@ 8.10
Egg	New York	2.34	7.60@ 7.75	7.60@ 7.85	9.25@12.00	8.00@ 8.35	9.25@12.00	8.00@ 8.35
Egg	Philadelphia	2.39	7.25@ 7.75	7.75	9.25@11.00	8.10@ 8.35	9.25@11.00	8.10@ 8.35
Egg	Chicago*	5.09	7.50	8.25	12.00@12.50	7.20@ 8.25	12.00@12.50	7.20@ 8.25
Stove	New York	2.34	7.90@ 8.20	7.90@ 8.10	9.25@12.00	8.00@ 8.35	9.25@12.00	8.00@ 8.35
Stove	Philadelphia	2.39	7.85@ 8.10	8.05@ 8.25	9.25@11.00	8.15@ 8.35	9.25@11.00	8.15@ 8.35
Stove	Chicago*	5.09	7.75	8.25	12.00@12.50	7.35@ 8.25	12.00@12.50	7.35@ 8.25
Chestnut	New York	2.34	7.90@ 8.20	7.90@ 8.10	9.25@12.00	8.00@ 8.35	9.25@12.00	8.00@ 8.35
Chestnut	Philadelphia	2.39	7.85@ 8.10	8.05@ 8.25	9.25@11.00	8.15@ 8.35	9.25@11.00	8.15@ 8.35
Chestnut	Chicago*	5.09	7.75	8.25	12.00@12.50	7.35@ 8.35	12.00@12.50	7.35@ 8.35
Range	New York	2.34	.....	.....	.....	8.25	.....	8.25
Pea	New York	2.22	5.00@ 5.75	5.75@ 6.45	7.50@11.00	6.15@ 6.30	7.50@11.00	6.15@ 6.30
Pea	Philadelphia	2.14	5.50@ 6.00	6.10@ 6.25	7.00@ 9.50	6.15@ 6.20	7.00@ 9.50	6.15@ 6.20
Pea	Chicago*	4.79	6.00	6.25	7.00@ 8.00	5.49@ 6.03	7.00@ 8.00	5.49@ 6.03
Buckwheat No. 1	New York	2.22	2.75@ 3.00	3.50	4.00@ 6.00	4.00@ 4.10	**5.25@ 6.25**	4.00@ 4.10
Buckwheat No. 1	Philadelphia	2.14	2.75@ 3.25	3.50	5.00	4.00	**5.00@ 5.50**	4.00
Rice	New York	2.22	2.00@ 2.50	2.50	2.50@ 3.00	2.75@ 3.00	**2.75@ 3.00**	2.75@ 3.00
Rice	Philadelphia	2.14	2.00@ 2.50	2.50	2.75@ 3.00	2.75@ 3.00	2.75@ 3.00	2.75@ 3.00
Barley	New York	2.22	1.50@ 1.85	1.50	1.50@ 2.00	1.50@ 2.00	**1.65@ 2.00**	1.50@ 2.00
Barley	Philadelphia	2.14	1.50@ 1.75	1.50	1.50@ 2.00	2.00	1.50@ 2.00	2.00
Birdseye	New York	2.22	.....	2.00@ 2.50	.....	2.10	.....	2.10

* Net tons, f.o.b. mines. † Advances over previous week shown in **heavy type**, declines in *italics*.

tons of soft coal. The available information indicates that the rate of consumption has increased since September, but has not yet equalled the rate of production. Consequently, coal has been flowing into storage, and stocks on Jan. 1, 1923, exceeded those in October. It is not yet clear how great the increase was, but further light will be shed on stocks and consumption after analysis has been made of reports now being received from consumers."

Coal trade in the Midwestern region is moving along at a fair clip in spite of warm winter weather and the general opinion that there will be no strike. No coal is soaring but most domestic is still in fair demand and steam is not exactly dragging. The last two days of last week saw a let-down, but sales managers for operating companies thought that was merely temporary and that this week conditions would strengthen slightly.

However, the keen demand for the best domestic grades at top prices has lost its edge and the lower-grade coals are getting a chance at the market at their lower prices. Dealers buy merely for their immediate trade, but this is enough to absorb a big volume of fuel. Big steam buyers have not stocked any to speak of. Most railroads are running along with much less than a week's supply on hand and practically every steam plant has wide empty spaces in its storage yard. Public utilities are so sure of an even and steady coal supply henceforth that none of them have stocked for more than 45 days. The average among them is said to be nearer 30 days, which is a low-water mark.

Car supply in several of the Midwestern fields has remained poor, thus cutting down to some extent the volume of southern Illinois and Indiana coals. Eastern Kentucky, on the other hand, has experienced a noticeable improvement and is now running along with a 40 per cent supply which means practically four days a week in that field since it is general practice there to over-rate mine capacities in determining car allotments.

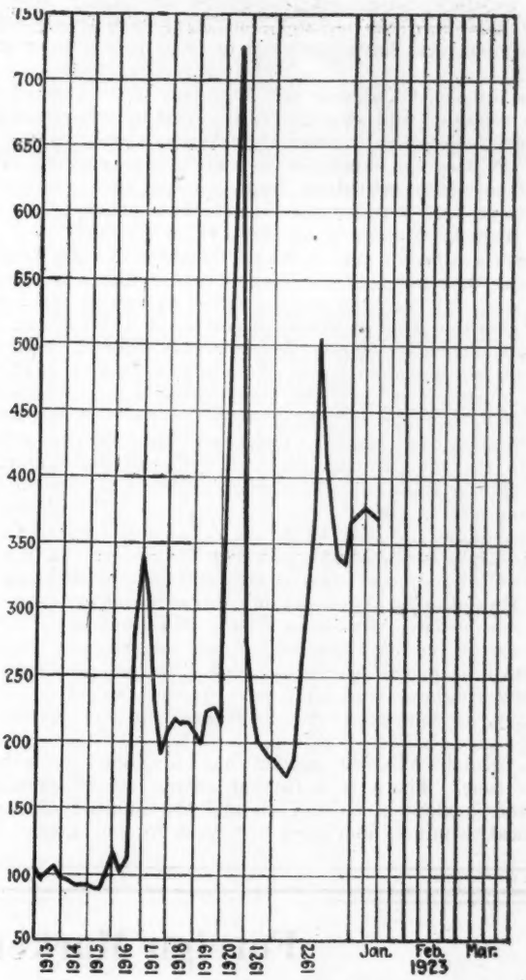
Very little Eastern coal gets across Indiana to Western markets. This practical exclusion of Pocahontas together with the low volume of anthracite in the region, gives Western lump and egg the best chance they ever had at the domestic markets.

In southern Illinois fields most mines are averaging 2½ days a week. Steam demand there is heavy enough to absorb the whole output and domestic pretty well takes care of itself. There has been no change in association domestic prices which hold firm at $5.50 for lump while independents are getting as low as $4 for lump, egg and nut. Screenings range $2.75@$3.

Western Kentucky, with a car supply averaging around 20 per cent on the L. & N. and about 47 per cent on the I. C., is moving out a good deal of coal toward the South. Prepared is in fair demand because of a little cold weather coming along just when dealers' stocks were low. Screenings are holding steadily above $2 and up to $2.50. The best lump from this field is bringing up to but not exceeding $4.50. Eastern Kentucky, with a steady byproduct demand to fill, is making good use of a fair car supply, getting $6.50@$7 for block, $6@$6.50 for lump, $3.25@$3.50 for steam mine run and 50c. more for gas mine run, and $3@$3.50 for screenings.

During the week the Northwest felt a slight firming up of the market for most soft coal because of the general feeling of tremulousness with which the countryside watches the dock stocks melting down. It is assured there will be no carry-over worthy of the name this year. Bituminous coal is bringing higher prices. Lump is up to $9.50, run of pile has jumped from $8 to $8.50@$8.75 and screenings have ascended from $6 to $6.25@$6.75. Northwestern dealers could sell all the Pocahontas they could get—if they could get any—but the supply is even shorter than the supply of anthracite. In Milwaukee Pocahontas mine run sells for $12.50 and screenings are hard to get at $11. In Wisconsin the state fuel commission eyes all sorts of domestic coal with interest because it says the state needs 175 cars of anthracite at once to protect against suffering in case of a severe cold spell.

In direct variance to the liveliness of the Northwest, coal markets in the West and Southwest are distinctly slower.



Coal Age Index 365, Week of Jan. 15, 1923. Average spot price for same period, $4.42. This diagram shows the relative, not the actual prices on fourteen coals, representative of nearly 90 per cent of the bituminous output of the U. S. weighted in accordance first with respect to the proportions each of slack, prepared tonnage of each normally produced. The average thus obtained was compared with the average for the twelve months ended June, 1914, as 100, after the manner adopted in the report on "Prices of Coal and Coke, 1913,1918," published by the Geological Survey and the War Industries Board.

How the Coal Fields Are Working

Percentages of full-time operation of bituminous coal mines, by fields, as reported by the U. S. Geological Survey in Table V of the Weekly Report.

	Six Months July to Dec. 1921	Jan. 1 to Apr. 1, 1922 Inclusive	Sept. 5 to Dec. 30, 1922 Inclusive	Week Ended Dec. 30, 1922
U. S. Total	45.6	55.7	....	....
Alabama	63.5	64.6	84.7	(a)
Somerset County	55.5	74.9	36.3	(a)
Panhandle, W. Va.	55.3	51.3	57.3	64.2
Westmoreland	54.9	58.8	65.8	58.5
Virginia	54.8	59.9	55.7	56.1
Harlan	53.3	54.8	22.1	26.5
Hazard	51.7	58.4	16.4	14.6
Pocahontas	49.8	60.0	36.6	43.0
Tug River	48.1	63.7	28.8	44.0
Logan	47.6	61.1	26.2	38.8
Cumberland-Piedmont	46.6	50.6	31.7	(a)
Winding Gulf	45.7	64.3	30.4	38.1
Kenova-Thacker	38.2	54.3	42.4	45.5
N. E. Kentucky	32.9	47.7	28.4	36.1
New River	24.3	37.9	31.6	36.8
Oklahoma	63.9	59.6	59.1	56.3
Iowa	57.4	78.4	75.9	95.8
Ohio, Eastern	52.6	46.6	40.8	43.2
Missouri	50.7	66.8	76.3	90.0
Illinois	44.8	54.5	49.9	53.3
Kansas	42.0	54.9	55.9	73.7
Indiana	41.4	53.8	37.7	(a)
Pittsburgh†	41.2	39.8	41.2	47.5
Central Pennsylvania	39.1	50.2	53.4	47.6
Fairmont	35.3	44.0	35.5	53.7
Western Kentucky	32.5	37.7	32.4	(a)
Pittsburgh*	30.4	31.9	56.1	61.2
Kanawha	26.0	13.0	15.6	18.5
Ohio, southern	22.9	24.3	38.1	45.1

* Rail and river mines combined.
† Rail mines.
(a) No report.

Mild weather throughout the plains and Rocky Mountain states has cut down demand and fairly regular car supply in the mountains have combined to force prices down materially.

The Kansas, Oklahoma and Arkansas fields, flooded with fairly cheap oil and attacked on the west by non-union Colorado are feeling the pressure right now as keenly as they ever have. A poor car supply is not such a saving grace, either, for it prevents operators from holding such markets as they have been feeding all winter. Some choice Oklahoma coals have been shipped all the way to Chicago.

There has been a lull in the spot market in New England. Receipts have not been large enough to induce any lowering of prices, but there have been fewer buyers in the market willing to take coal at present figures. A little lack of faith in the spot market 60 days hence is also shown by operators who are willing now to make contracts to Jan. 1, 1924, on a basis much lower than the same coals would command at this time. Consumers are inclined to hold off, preferring to rely upon their present stocks until they can get a better line on the developments the remainder of the winter. In consequence there is just enough demand to absorb what tonnage offers.

Pocahontas and New River are being firmly held. Output is still on less than a 50 per cent basis, and the Western demand for prepared sizes is still sufficient to withhold coal from Hampton Roads except on contracts and for remunerative spot prices. Hampton Roads dumpings were 280,060 net tons during the week ended Jan. 11, as compared with 231,386 tons in the preceding week. The all-rail movement to New England was 3,115 cars during the first week of January, as compared with 2,696 cars during the previous week.

The North Atlantic market has developed a decidedly easier tone. There is a further easing off of quotations. Demand is slow in New York and the number of cars at the local terminals increased last week to over 4,000. Much of this was due to the embargo placed on shipments to New England and to orders placed for shipments a few weeks ago when quotations were 50c.@$1 higher. The break in the market, to some extent, is reflected in the fact that there is now a difference in Baltimore quotations on some of the coals running to such pools as 9 and 10, with the price paid for Pennsylvania line fuels 25c.@50c. higher than for B. & O. and Western Maryland coal. Gas coals showed considerable weakness last week and the drop in price was more marked than for steam fuels.

ANTHRACITE

Production of hard coal was 1,725,000 net tons during the first week of 1923, as compared with 1,560,000 tons during the preceding week. Shippers and distributors agree that the milder weather of late has been the saving feature, as the supply is still inadequate. New England received 3,627 cars during the week ended Jan. 6, a marked increase when compared with 3,166 cars in the preceding week.

COKE

Production of beehive coke recovered quickly from the holiday slump. The output during the week ended Jan. 6 was 308,000 net tons as compared with 263,000 in the preceding week. Connellsville production continued to improve, despite the lessened demand for coke for domestic purposes.

Car Loadings, Surplusages and Shortages

	Cars Loaded — All Cars	Cars Loaded — Coal Cars
Week ended Dec. 30, 1922	711,200	173,370
Previous week	834,591	181,325
Same date in 1921	528,556	104,625

	Surplus Cars — All Cars	Surplus Cars — Coal Cars	Car Shortage	
Dec. 31, 1922	14,981	3,651	82,927	36,521
Dec. 23, 1922	9,563	2,532	99,908	43,664
Same date in 1921	465,000	220,000	.....	.....

Foreign Market And Export News

German Troubles Aid British Coal

Christmas holidays dropped British weekly production below the 5,000,000-ton mark for the first time since early in September. The output for the week ended Dec. 30, was 3,428,000 gross tons, according to a cable to *Coal Age*. Demand for coal is active, however, and prices are strong.

The United States has open orders for January and February loadings of around 250,000 tons and further large commitments are expected from Canada. The Brazilian Railways recently contracted for 150,000 tons, delivery in six months, and the Continental demand is strong. French occupation of the Ruhr has produced heavy orders for Germany. The holiday mine idleness has given an opportunity for shippers to clear away much of the congestion on wheels and at the piers.

Brisk Trading at Hampton Roads

The situation at Hampton Roads showed considerable improvement last week, with supplies of coal on the increase and a somewhat better outlook in the car situation. Demand was brisk but shippers were unable to meet all spot requirements as so much tonnage is rolling westward.

Stronger demand gave the market a decidedly firmer tone throughout. The bulk of the movement was coastwise, increased demands from the North having stimulated trade.

Car shortage was still pronounced, but not on the plane that had obtained for the previous six weeks or two months.

Hampton Roads Pier Situation

	Week Ended Jan. 4	Week Ended Jan. 11
N. & W. Piers, Lamberts Pt.:		
Cars on hand	1,057	1,104
Tons on hand	74,625	74,243
Tons dumped	87,254	82,623
Tonnage waiting	5,850	13,000
Virginian Ry. Piers, Sewalls Pt.:		
Cars on hand	983	1,341
Tons on hand	55,800	75,550
Tons dumped	59,449	89,588
Tonnage waiting	6,733	1,850
C. & O. Piers, Newport News:		
Cars on hand	1,610	1,769
Tons on hand	92,200	95,200
Tons dumped	59,892	77,843
Tonnage waiting	4,425	8,240

Current Quotations British Coal f.o.b. Port, Gross Tons

Foreign Quotations by Cable to *Coal Age*

	Jan. 6	Jan. 13†
Admiralty, large	28s.@28s.6d.	28s.@28s.6d.
Steam, smalls	17s.@17s.6d.	17s.6d.@18s.6d.
Newcastle:		
Best steams	24s.@25s.	24s.6d.@25s.
Best gas	24s.6d.	24s.6d.@25s.
Best bunkers	22s.6d.@23s.6d.	23s.6d.

† Advances over previous week shown in **heavy** type; declines in *italics*.

Export Clearances, Week Ended Jan. 11, 1923

FROM HAMPTON ROADS

For Cuba:	Tons
Nor. SS Sangstad, for Cienfuegos	3,457
Dan. SS Trompenberg, for Nuevitas	2,578
Nor. SS Gefion, for Sagua de Tanamo	595
Dan, SS Elizabeth Maersk, for Santiago	1,989

Pier and Bunker Prices, Gross Tons

	Jan. 6	Jan. 13†
PIERS		
Pool 9, New York	$9.00@$9.25	*$8.25@$8.75*
Pool 10, New York	8.35@ 8.75	*7.75@ 8.00*
Pool 11, New York	8.00@ 8.25	*7.25@ 7.50*
Pool, 9, Philadelphia	8.50@ 9.00	8.50@ 9.00
Pool 10, Philadelphia	7.90@ 8.15	7.90@ 8.15
Pool 11, Philadelphia	7.30@ 7.65	7.30@ 7.65
Pool 1, Hamp. Roads	8.25@ 8.75	8.50@ 9.00
Pools 5-6-7 Hamp. Rds.	8.00	8.50
Pool 2, Hamp. Rds.	8.25@ 8.75	8.50@ 9.00
BUNKERS		
Pool 9, New York	$9.40@$9.65	*$8.70@$9.15*
Pool 10, New York	8.80@ 9.15	*8.15@ 8.40*
Pool 11, New York	8.40@ 8.70	*7.70@ 7.90*
Pool 9, Philadelphia	8.70@ 9.20	8.70@ 9.20
Pool 10, Philadelphia	8.35@ 8.60	8.35@ 8.60
Pool 11, Philadelphia	7.60@ 7.80	7.60@ 7.80
Pool 1, Hamp. Rds.	8.50	8.75
Pool 2, Hamp. Rds.	8.50	8.75
Welsh, Gibraltar	38s. f.o.b.	38s. f.o.b.
Welsh, Rio de Janeiro	57s. 6d. f.o.b.	57s. 6d. f.o.b.
Welsh, Lisbon	50s. f.o.b.	50s. f.o.b.
Welsh, La Plata	50s. f.o.b.	50s. f.o.b.
Welsh, Genoa	42s. t.i.b.	42s. t.i.b.
Welsh, Algiers	38s. f.o.b.	38s. f.o.b.
Welsh, Pernambuco	65s. f.o.b.	65s. f.o.b.
Welsh, Bahia	65s. f.o.b.	65s. f.o.b.
Welsh, Madeira	40s. 6d. f.a.s.	40s. 6d. f.a.s.
Welsh, Teneriffe	38s. 6d. f.a.s.	38s. 6d. f.a.s.
Welsh, Malta	41s. f.o.b.	41s. f.o.b.
Welsh, Las Palmas	38s. 6d. f.a.s.	38s. 6d. f.a.s.
Welsh, Naples	39s. 3d. f.o.b.	39s. 3d. f.o.b.
Welsh, Rosario	52s. 6d. f.o.b.	52s. 6d. f.o.b.
Welsh, Singapore	50s. t.i.b.	50s. t.i.b.
Welsh, Constantinople	50s. f.o.b.	50s. f.o.b.
Welsh, St. Michaels	50s. t.i.b.	50s. t.i.b.
Welsh, Port Said	49s. f.o.b.	49s. f.o.b.
Welsh, Oran	38s. f.o.b.	38s. f.o.b.
Welsh, Fayal	50s. t.i.b.	50s. t.i.b.
Welsh, Dakar	42s. 6d. f.o.b.	42s. 6d. f.o.b.
Welsh, St. Vincent	42s. f.a.s.	42s. f.a.s.
Welsh, Montevideo	50s. f.o.b.	50s. f.o.b.
Welsh, Alexandria	42s. f.o.b.	42s. f.o.b.